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ABSTRACT

A feasibility study was conducted to examine in detail, analyze, and describe the development and operation (system effectiveness and efficiency) of a patient learning center in a MEDDAC, and to provide such information to the Surgeon General for use in planning future health care delivery to military-care eligible beneficiaries. Study objectives included the following: develop and describe the physical facilities; develop, describe, and evaluate a professional and a self-referral system; describe and analyze the outcomes of eight learning systems (e.g., concerning hypertension, diabetes, weight control, breast self-examination, and family planning); and document the patient consumer's and professional user's response to the systems approach in a prototype patient education setting. (The report discusses the experiences gained and the problems encountered for one year of operation, August 1976-July 1977. Suggestions and recommendations are included.) (JH)

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HCSD Report #79-001-C

A PATIENT LEARNING CENTER FOR AN ARMY MEDDAC - A FEASIBILITY STUDY

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The purposes of the study were to examine in detail, analyze, and describe the development and operation (system effectiveness and efficiency) of a patient and evaluate a professional referral system; to document the professional and consumer user's response to the systems approach in a prototype patient education setting; to develop, describe, and evaluate a self-referral system; to describe and analyze the outcomes of eight learning systems (hypertension, diabetes, weight control, breast self-examination, low back pain, vaginitis, family planning, child growth and development). The report documents the experiences gained and the problems encountered for the one year of operation, August 1976 - July 1977. The attempts made to resolve these problems were discussed and appropriate suggestions or recommendations were made. The type of data collected was included and may prove useful as a source of information for those contemplating establishing a patient learning center.

SUMMARY

1. INTRODUCTION.

a. Perhaps the most convincing testimony in support of health education of the public is contained in The Report of the President's Committee on Health Education. In the Letter of Transmittal to the President, the report conveys: "...how deplorably this country is neglecting a vast opportunity to help people help themselves to have better health." In addition, it states that "it is evident from our inquiry that the needs, problems, and opportunities in health education are so large, so urgent, and so complex that progress will depend upon a major long-term commitment to it by the nation's leaders." The letter goes on to say that, "the responsibility, the challenge and the burden of providing for the widespread need, solving the problems, and meeting the opportunities must be shared by all concerned and capable parties in both the public and private sectors of society."[1,2]

b. Purpose.

The purposes of this phase as the fourth of a planned series of five studies was to study in detail, analyze, and describe the development and operation (system effectiveness and efficiency) of a patient learning center in a MEDDAC, and to provide such information to the Surgeon General for use in planning future health care delivery to military-care eligible beneficiaries.

c. Background.

Toward this end, in 1973 Kucha developed and validated a model with guidelines for consumer health education based on the educational technology systems approach.[3] The overall purpose of Project PACOMED (Patient and Community Health Education Model: A Developmental and Evaluation Project Study) was to revalidate all components of the original model on a grander scale with the hope that the findings could be of value in assisting to upgrade the current health education practices in the Army, DOD, and the nation.[4]

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[1] U.S. Department of Health, Education, and Welfare, Forward Plan for Health, FY 1977-81, June 1975, 86.

[2] U.S. Department of Health, Education, and Welfare, The Report of the President's Committee on Health Education, 1973, 11-12.

[3] Kucha, D.H., The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973.

[4] Kucha, D.H., Health Care Delivery Proposal, Original Protocol; Patient and Community Health Education Model: A Developmental and Evaluation Project (Project: PACOMED), January 1974.

2. OBJECTIVES.

The overall objective of the fourth phase of Project: PACOMED was to ascertain the feasibility of a patient learning center for a MEDDAC. The specific objectives were:

a. To develop and describe the physical facilities,

b. To describe the selection of the communications media,

c. To develop, describe, and evaluate the role of a para-professional as learning laboratory technician (91C20 or 91B20),

d. To develop, describe, and evaluate a professional referral system,

e. To document the professional user's response to the Systems Approach in a prototype patient education setting,

f. To develop, describe, and evaluate a self-referral system,

g. To describe and analyze the outcomes of the eight learning systems, and

h. To document the patient consumer response to the systems approach in a prototype patient education setting.

3. METHODOLOGY.

a. This part of the PACOMED study was primarily developmental. This report documents the experiences gained and the problems encountered for the year of operation, August '76 - July '77. The attempts made to resolve these problems were discussed and appropriate suggestions or recommendations were made. The type of data collected was included and may prove useful as a source of information for those contempleting establishing a patient learning center.

b. The overall project was ongoing for three years, September 74 - September 77.[5] The first year an assessment of patient and community health needs was completed.[6] In addition current baseline information and cost analysis pertaining to patient information and education was collected. Concurrent with that the procurement of equipment and learning center furniture was accomplished along with the development of the Prototype Patient Education Center. From July 75 thru July 76 the completion of the eight learning systems (hypertension, diabetes, weight control, breast self-examination, family planning, child growth and development, vaginitis, and low back pain) via the Instructional Systems Design Process and validation were completed.[7]

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[5] Kucha, D.H., Health Care Delivery Proposal, Original Protocol; Patient and Community Health Education Model: A Developmental and Evaluation Project (Project: PACOMED), January 1974.

[6] Kucha, D.H., Assessment of Consumer Health Education Needs of DeWitt MEDDAC, Fort Belvoir, VA, (Phase 1, Final Report, April 1975, HCSD, AHS, FSHTX.)

c. The first learning system that was completed was hypertension, Oct. 75. From Oct 75 until May 77 a comparative study was done.[8]

d. This fourth study is a description of the remainder of the developmental components that haven't been reported on. Because the total study was so comprehensive and had so many phases it would have been unrealistic to address all components in one report. Furthermore, the components of the system, assessment, planning, resource, design, evaluation, and research[9] were so designed that each component could stand alone, have a two-way communication relationship with another component or function synergically as a total consumer patient health education system.

e. As such there was no one final report but a series of cumulative reports with the outcomes of the initial report setting the foundation for the other consecutive studies. By so doing decisions did not need to be held off before the "final" results were in.

4. CONCLUSIONS.

a. Physical Facilities.

Due to time and space constraints the findings for the physical facilities were limited and can only be used as guidelines.

b. Communications Media.

Until approximately 1985 the videocassette format appears to be the most cost effective and efficient medium, for the AMEDD, in which to transmit the validated patient learning systems in hospitals and outpatient settings.

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[7] Kucha, D.H., Strategy for Instructional Systems Design and Formative Evaluation, Phase 2, Final Report, July 1976, HCSD, AHS, FSHTX.

[8] Kucha, D.H., A Comparative Evaluation of the Traditional Versus a Systems Approach for Hypertensive Patient Education, Phase 3, Final Report, August 1977, HCSD, AHS, FSHTX.

[9] Kucha, D.H., The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973.

c. Non-Professional Paramedic as Health Educator.

(1) Graduates of the 91C20 Clinical Specialist Course should be considered as potential health educators.

(2) The health educator would be qualified to perform the functions of: learning center operator, counselor, records manager, and coordinator of learning center activities.

(3) The Chief, Health and Environment (or Community Health Nurse) or Chief, Nursing Education and Training (Educational Coordinator) should be considered for overall supervisor, coordinator, budgeting and program planner for the individual MEDCEN and MEDDAC learning centers.

d. Program Development.

(1) Staff Development, Professional and Self Referral.

(a) The outcomes indicated that there wasn't any strong resistance on the part of the professionals toward PACOMED. However, they were reluctant to accept some features of the concept, especially in areas concerning professional roles. There was much ambivalance on the part of the professional staff concerning patient education.

(b) Giving additional benefits such as preventive and patient education to health consumers is not enough. Patient consumers need stronger motivators plus more mass education about the value of preventive medicine.

(c) Preventive patient education for the active duty soldier needs to be provided via his/her unit training system rather than a hospital based program.

(d) Part of the problem was that there wasn't enough time to develop the program planning and management systems properly. Consequently, many of the measurements and observations were premature and perhaps didn't reflect the "true" picture. At best this study component only suggests the direction the various stages of program development may have taken.

(2) Accountability and Monitoring.

(a) All of the baseline data indicated a need for a more effective, efficient, cost effective method of providing patient education than now exists in the AMEDD health care delivery system.

1 Not all of the patients were receiving needed patient education.

2 In more cases than not, the health care provider was a physician rather than a nurse clinician. Therefore, most of the instruction that was provided was given by a physician. The cost was too high, it wasted valuable professional time and did not provide for quality assurance in the patient education area.

3 The instructions that were given weren't very effective, as indicated in the individual patient baseline scores, in the areas of comprehension, retention, and psychomotor skills.

4 The data revealed that patients were only getting part of the educational message. There were wide gaps in what behaviors were perceived to be most important and the priorities that were given those behaviors by the patients.

5 The PACOMED concept could provide the patient education at approximately 1/1000th the cost if the learning systems would be used in 30 to 50 MEDCENS, MEDDACS, or troop clinics.

(b) Judging from the demographic data it was documented that the five learning systems (hypertension, diabetes, weight control, breast self examination, and low back pain) all have wide application for the active duty soldier. Therefore, the implications of providing preventive patient education using the I.S.D. approach via some form of medium for the active duty soldier that is cost effective could have far reaching consequences.

(c) The data suggest that booster levels and times of reinforcement were learning system dependent. In other words, different topic areas and learning objectives probably would require different time increments for optimum reinforcement in order to sustain desired outcomes.

(d) The analysis of the Patients' Opinion toward the systems approach indicated very positive findings in relation to the SA concept. Scores were high in content interest, uniqueness and value, the non-professional paramedical health educator's style, the learning center concept, audiovisual preference for instruction, more freedom to learn, and greater personal responsibility for learning by audiovisual compared to usual instruction by professional health care workers. The patients attitudes toward the audiovisual modes were excellent. There was a high acceptance of the non-professional as health educator.

(e) Many patient consumers reflected an attitude, conveyed by their actions, of the relative unimportance in their value system of health education per se. Therefore, more general education and information about the value of consumer health education will be needed to change their current attitudes.

(3) This phase of the PACOMED project was too short. At least an additional one or two years would have been needed to examine the results of the outcomes properly. More subjects as well as long-term measurements in all areas were needed.

5. RECOMMENDATIONS

a. Although the patient measurements were limited, the outcomes of this phase, like the hypertension study, demonstrated the efficiency of the SA approach in the areas of comprehension, retention, behavioral influence and cost-effectiveness. It would appear very desirable to immediately start this type of patient education program in the AMEDD.

b. Consideration should be given by HSC and OTSG to institute action toward this end.

c. Additional research should be done in the following areas:

(1) Cost analysis studies in the areas of quantifying benefits more accurately and in the distribution of costs and utilization of patient education.

(2) Identification of threshold and booster levels as well as levels of diminishing returns.

(3) Development of common measurable predictors of success for a receptive attitude toward patient education and the various methodologies.

(4) The relationships between patient knowledge levels and patterns of disease control.

(5) Retention studies to evaluate the long-term worth (2, 5, 10 years) of different types of consumer educational programs.

(6) Studies to develop successful motivational techniques for health care providers and patient consumers.

d. The complete report and specifically the many findings and observations should be made available to those conducting research in patient education and operating or planning to operate a patient education program.

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1. INTRODUCTION.

a. Perhaps the most convincing testimony in support of health education of the public is contained in The Report of the President's Committee on Health Education. In the Letter of Transmittal to the President, the report conveys: "...how deplorably this country is neglecting a vast opportunity to help people help themselves to have better health." In addition, it states that "it is evident from our inquiry that the needs, problems, and opportunities in health education are so large, so urgent, and so complex that progress will depend upon a major long-term commitment to it by the nation's leaders." The letter goes on to say that, "the responsibility, the challenge and the burden of providing for the widespread need, solving the problems, and meeting the opportunities must be shared by all concerned and capable parties in both the public and private sectors of society."[1,2]

b. Evidence of the effectiveness and efficiency of health education has been demonstrated in several cases. Seven studies in particular may be taken as indicative of potential benefits of health education.

(1) Experimental and control groups of congestive heart failure patients were formed. The experimental group received educational support. A significant correlation between the attainment of knowledge and behavior was found as evidenced by the following results:

(a) the experimental group had one-third as many readmission days as the control group;

(b) the experimental group had one-half as many readmissions as the control group;

(c) the experimental group had more faithful adherence to medical regimen than the control group; and

(d) the experimental group had lower intake of sodium in the diet.[3]

(2) Information about and guidance in post-operative pain were provided to an experimental group of surgery patients who were not participants in the same health education activities. The experimental group was found to:

(a) have 50 percent fewer requests for narcotics for relief of pain; and

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[1] U.S. Department of Health, Education, and Welfare, Forward Plan for Health, FY 1977-81, June 1975, 86.

[2] U.S. Department of Health, Education, and Welfare, The Report of the President's Committee on Health Education, 1973, 11-12.

[3] Rosenberg, S.G., "Patient Education Leads to Better Care for Heart Patients," HSMHA Health Reports, Sept. 1971, 86 (9): 793-802.

(b) be sent home 2.7 days earlier by their physicians (who were unaware of the education received by the patients).[4]

(3) A self-selected sample of male hemophiliac outpatients and their families received education in the management of their bleeding problems. Instruction and practice in self-infusion were the basic components of the educational activities. Data were obtained on these patients from one year before the study and one year after the study. The following statistically significant results were found:

(a) total inpatient days per year declined from 423 to 42;

(b) as a result of the decreased number of inpatient days, hospitalization costs were reduced by 89 percent;

(c) outpatient visits per patient per year decreased 76 percent — from 23.0 visits per year to 5.5;

(d) mean cost of therapy per patient per year went down 45 percent -- from $5,780 to $3,209; and

(e) absenteeism from work or school decreased 74 percent — from 26.3 days per patient per year to 6.8.[5]

(4) Experimental and control groups were established for asthmatic patients who utilized the emergency room. The experimental group received an educational program including information on and instruction in the causes of asthma and on factors contributing to asthma that can be altered by patient behavior. After four months, comparisons were made between the experimental and control groups which revealed the following:

(a) the experimental group totaling 26 individuals had one-half the cumulative total of visits (55 fewer visits) to the emergency room; and

(b) for every dollar spent in delivery of education services to the experimental group, $6.00 of medical care costs were saved.[6]

(5) A system of diabetic care was reorganized in a medical center clinic by initiating a telephone service to provide information, medical advice, and prescriptions. The operation of this multifaceted program resulted in the following improvements:

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[4] Egbert, L.D., et al., "Reduction of Post-Operative Pain by Encouragement and Instruction of Patients," The New England Journal of Medicine, 16 April 1964, 270 (16): 825-827.

[5] Levine, P.H. and Britten, A.F., "Supervised Patient-Management of Hemophilia," Annuals of Internal Medicine, 1973, 78: 195-201.

[6] Avery, C.H., et al., "Reducing Emergency Room Visits of Asthmatics: An Experiment in Patient Education," Testimony, President's Committee on Health Education, Pittsburgh, January 1972.

(a) approximately two-thirds reduction in the incidence of diabetic coma over a two-year period;

(b) 50 percent reduction in the number of emergency room admissions by diabetics even though the clinic population increased from 4,000 to 6,000; and

(c) total savings in emergency room admission for a two-year period was $1,797,750.[7]

(6) The Stanford Heart Disease Prevention Program initiated a five-year study with objectives of teaching individuals between the ages of 35 and 69 about heart risk factors and of stimulating individuals to adopt more healthful behavior. Three communities were exposed to different mixes of television spots, printed materials, and personal instruction. In the maximum treatment town, all three health education approaches were used and substantial change was shown. Before the campaign, only about 18 percent of the population had any knowledge about triglycerides. Afterward, 45 percent of the participants from this town were knowledgeable on the subject. Cigarette smoking declined about 20 percent within the town's total population and 40 percent by high-risk persons in the total population. In addition, the number of eggs eaten per week declined 40 percent. The second town was only exposed to mass media. The participants exhibited little change. Cigarette smoking declined about 3 percent and the number of eggs eaten per week by 27 percent. The third town represented the control group revealing negligible change or change in the opposite direction. Cigarette smoking remained unchanged and the number of eggs eaten per week declined 17 percent.[8]

(7) An empirical model of an outpatient health information and management system was designed, developed, and evaluated. The conclusions of the study were that the systems model was superior to the conventional method in solving outpatient information and management problems where the conventional patient information and management had produced minimum results or failed.

(a) The conceptual model featured substantial strength in:

1 the cost effectiveness in relation to professional time saved;

2 terms of problem-solving potential in areas of accountability, quality assurance, and professional audit;

3 providing meaningful solutions to existing problems concerning ambulatory care information systems;

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[7] Miller, L.V. and Goldstein, J., "More Efficient Care of Diabetic Patients in a County Hospital Setting," The New England Journal of Medicine, 29 June 1972, 286 (26): 1163-1164.

[8] Health Promotion and Consumer Health Education, A Task Force Report Sponsored by The John E. Fogerty International Center for Advanced Study in the Health Sciences National Institutes of Health and The American College of Preventive Medicine, Prodist; New York, 1973, 63-64.

4 presenting an empirical, microanalytic systems approach which would net highly effective results within the totality of comprehensive health planning, particularly with regard to multiphasic interface;

5 the instructional systems design process in communicating skills and knowledge in relation to patient education information;

6 providing for standardization of information at a time when new roles for health technicians were emerging and older roles were expanding to greater dimensions and responsibilities;

7 describing a contingency management plan that provided simplicity in dealing with the changing concepts of health care and patient education;

8 the systematic planning feature of the process, offered a means of evaluating the effectiveness of such a system in relation to community, state, regional, and national problems. It provided a means for measuring progress at varying levels within the problem area, thereby giving perspective to the local problem in relation to the overall problem and progress toward its solution; and

9 offering a generalizable model that could be applied to other areas of health education and/or the health care delivery system, e.g., patient education in hospitals and other health care institutions, school health education, occupational health education, community health education, national health, and health-related agency programs, the media and training or continuing education of health education personnel as well as physicians, nurses, and other health workers.[9,10,11,12,13,14]

c. As reflected in the preceding studies, health education has been shown to be successful in several instances. Results of these studies can and are being interpreted as having reasonably wide application to similar programs. The effectiveness of other programs, especially involving asymptomatic individuals, is more difficult to measure and efforts have been limited in this area.

d. This situation is no different than attempts to measure the outcome of health care in general due to the complexity of external and internal forces by which it is affected.

e. Although an increasing number of groups and individuals are recognizing the importance and need for health education, the commitment is only in its infancy. Given the relationship between health behavior and health status and the growing body of evidence which points to health education as a potentially effective and efficient means of influencing behavior and thus health status, greater emphasis should be placed on health education within the health care delivery system. This emphasis should be translated into increased resources being allocated to promote health education activities.[15]

[9] Kucha, D.H., *The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System*, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973.

[10] Kucha, D.H., "An Evaluation of Traditional and Programmed Instruction to Teach Medical Management to Patients and Their Families," *Educational Technology Research*, Educational Technology Publications, Englewood Cliffs, New Jersey, 1971, 50: 1-20.

[11] Kucha, D.H., "A Long-Term Retention Study of Traditional and Programmed Instruction to Teach Medical Management to Patients and Their Families," as it appears in *The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System*, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973, 202-210.

[12] Kucha, D.H., *Assessment of Consumer Health Education Needs of DeWitt MEDDAC, Fort Belvoir, VA*, (Phase 1, Final Report, April 1975, HCSD, AHS, FSHTX.)

[13] Kucha, D.H., *Strategy for Instructional Systems Design and Formative Evaluation*, (Phase 2, Final Report, July 1976, HCSD, AHS, FSHTX.)

[14] Kucha, D.H., *A Comparative Evaluation of the Traditional Versus a Systems Approach for Hypertensive Patient Education*, (Phase 3, Final Report, August 1977, HCSD, AHS, FSHTX.)

[15] *Health Education of the Public: A Statement of Public Policy, September 1976*, Prepared by: State Health Planning Advisory Council and the Office of Health and Medical Affairs, Lansing, Michigan, 19-20.

a. Purpose.

(1) The purposes of this phase as the fourth of a planned series of five studies was to study in detail, analyze, and describe the development and operation (system effectiveness and efficiency) of a patient learning center in a MEDDAC, and to provide such information to the Surgeon General for use in planning future health care delivery to military-care eligible beneficiaries.

b. Background.

(1) Throughout recorded history, responsibility for health was placed on the individual. However, as better knowledge of the human body and disease mechanisms were acquired and medical practice became more scientific, society came to place increasing dependence on medical intervention, together with required public health measures. Concomitantly, decreasing emphasis was placed on individual behavior and individual responsibility. Both doctor and patient accepted the authoritarian curative role of the physician as the appropriate avenue to health.[16]

(2) The results of these developments are evident in the nation's health statistics. Despite the vast increase in health care expenditures and the the greatly improved access to care on the part of most Americans, our status with respect to illness, disability, and premature death shows little, if any, signs of improvement.[17,18,19,20]

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[16] The President's Committee on Health Education, Report, Department of Health, Education, and Welfare, 1973, 25.

[17] U.S. Department of Health, Education, and Welfare, Center for Disease Control, Immunization Division, Summary of Immunization Status for Polio, DTP, Measles, and Rubella, U.S., 1974, Preliminary data from U.S. Immunization Survey, 1974, Atlanta, GA., Tables 1 and 7.

[18] U.S. Department of Health, Education, and Welfare, Estimated Health Expenditures Under Selected National Health Insurance Bills, A report to the Congress, July 1974, 3 (processed).

[19] Klebba, A.J. et al., Mortality Trends: Age, Color, Sex, United States, 1950-69, Department of Health, Education, and Welfare, National Center for Health Statistics, Ser 20, No 15, 1973, 3 ff.

[20] Klebba, A.J. et al., Mortality Trends for Homicide by Age,Color, and Sex: United States, 1960-1972, Department of Health, Education, and Welfare, National Center for Health Statistics (processed).

[25] Cook, F.J., "The Operation Was A Success But The Patient Died," New York Magazine, 18 Nov 1974, 1 (46): 121-151.

[26] Nursing Home Care in the U.S., reports of the New York State Temporary State Commission on Living Costs and the Economy (Stein Commission) New York Times, Jan - March, 1975.

[27] Fuchs, V.R., Who Shall Live? Health, Economics, and Social Choice, (New York, Basic Books, 1974), 16.

[28] Ibid., 54-55.

[29] Kucha, D.H., The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973.

[30] Kucha, D.H., Health Care Delivery Proposal, Original Protocol; Patient and Community Health Education Model: A Developmental and Evaluation Project (Project: PACOMED), January 1974.

2. OBJECTIVES.

The overall objective of the fourth phase of Project: PACOMED was to ascertain the feasibility of a patient learning center for a MEDDAC. The specific objectives were:

a. To develop and describe the physical facilities,

b. To describe the selection of the communications media,

c. To develop, describe, and evaluate the role of a para-professional as learning laboratory technician (91C20 or 91B20),

d. To develop, describe, and evaluate a professional referral system,

e. To document the professional user's response to the Systems Approach in a prototype patient education setting,

f. To develop, describe, and evaluate a self-referral system,

g. To describe and analyze the outcomes of the eight learning systems, and

h. To document the patient consumer response to the systems approach in a prototype patient education setting.

3. METHODOLOGY.

a. This part of the PACOMED study was primarily developmental. This report documents the experiences gained and the problems encountered for the year of operation, August '76 - Jul '77. The attempts made to resolve these problems are discussed and appropriate suggestions or recommendations are made. The type of data collected is included and may prove useful as a source of information for those contempleting establishing a patient learning center.

b. The overall project was ongoing for three years, September 74 - September 77.[31] The first year an assessment of patient and community health needs was completed.[32] In addition current baseline information and cost analysis pertaining to patient information and education was collected. Concurrent with that the procurement of equipment and learning center furniture was accomplished along with the development of the Prototype Patient Education Center. From July 75 thru July 76 the completion of the eight learning systems (hypertension, diabetes, weight control, breast self-examination, family planning, child growth and development, vaginitis, and low back pain) via the Instructional Systems Design Process and validation were completed.[33]

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[31] Kucha, D.H., Health Care Delivery Proposal, Original Protocol; Patient and Community Health Education Model: A Developmental and Evaluation Project (Project: PACOMED), January 1974.

[32] Kucha, D.H., Assessment of Consumer Health Education Needs of DeWitt MEDDAC, Fort Belvoir, VA, (Phase 1, Final Report, April 1975, HCSD, AHS, FSHTX.)

c. The first learning system that was completed was hypertension, Oct. 75. From Oct. 75 until May 77 a comparative study was done.[34]

d. This fourth study is a description of the remainder of the developmental components that haven't been reported on. Because the total study was so comprehensive and had so many phases it would have been unrealistic to address all components in one report. Furthermore, the components of the system, assessment, planning, resource, design, evaluation, and research[35] were so designed that each component could stand alone, have a two-way communication relationship with another component or function synergically as a total consumer patient health education system.

e. Because the literature does not conclusively provide a specific framework for the multiple problems being described or investigated in this study, the definition of technology goes beyond any particular medium or device. In this sense, technology is more than the sum of its parts; it is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction. It was this definition, the process, that was given emphasis throughout the developmental phase of the study.

f. Because of the multiple components in this study only the procedures, findings, and related discussions will be presented in the body of the report. In order to remain consistent and to insure standardization the same basic format was used for each component. Each report of the total series can be utilized alone or in concert to orchestrate a Consumer Health Education System.

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[33] Kucha, D.H., Strategy for Instructional Systems Design and Formative Evaluation, Phase 2, Final Report, July 1976, HCSD, AHS, FSHTX.

[34] Kucha, D.H., A Comparative Evaluation of the Traditional Versus a Systems Approach for Hypertensive Patient Education, Phase 3, Final Report, August 1977, HCSD, AHS, FSHTX.

[35] Kucha, D.H., The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973.

4. PHYSICAL FACILITIES.

a. Procedures.

(1) The PACOMED learning center, and additional rooms, were located in the Outpatient Facility, adjacent to the Family Practice Clinic, U.S. Army MEDDAC, DeWitt Army Hospital, Fort Belvoir, VA 22060. Seven rooms were needed, in total, for the developmental and evaluation support, i.e., project director's office, administrative and computational offices. Four of the seven rooms were for patient education purposes.

(2) The development of the physical facilities of the PACOMED learning center were based on the project director's prior experience, field trips to instructional media centers, review of the literature, and space allocations, supplies and services, budget and personnel constraints.

(3) The descriptions, findings, and discussions were based on utilization of the facilities from Jul '75 -- Jul '76, formative evaluation phase, and during Jul '76 -- Jul '77, summative evaluation phase.[36,37,38,39,40]

(4) Description of the PACOMED Learning Center.

(a) The PACOMED learning center was approximately 23' deep X 10' wide. Cool biscayne blue walls complimented the four double rows of fluorescent lights, providing excellent lighting of the entire room.

(b) The room was furnished from back to front with a 54" circular mahagony top table with four deep blue posture conforming chairs. Against the left wall were five rows (from floor to ceiling) of 48 inch shelves, one five drawer legal size file cabinet, three study carrels with deep blue posture conforming chairs, an attractive mahagony lectern on wheels, and another set of 48 inch shelves. The right wall contained one 18" X 35" X 60" grey steel storage cabinet, a five drawer legal size file cabinet, and three study carrels. A Sony video cassette player and monitor contained within a wheeled metal cabinet was against the wall next to the door for good visual contact for all patients.

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[36] Ellsworth, R.E., Academic Library Buildings (Boulder, CO, The Colorado Associated University Press, 1973).

[37] Canter, D., "Office Size," Architects Journal, Aa3: UDC 725-23-301.151, Sfb 92: 881-888.

[38] Vogel, C.W., "A Prolegomenon to Study Carrel Planning," Educational Product Report, 1968, 2(Z): 8-13.

[39] Amaria, R.P., Biran, L.A., and Leith, G.O.M., "Individual Versus Cooperative Learning," Educational Research, 1968/9, 11: 905-1103.

[40] Van der Ryn, S. and Silverstein, M., "The Room, A Student's Personal Environment," In R. Gutman (Ed.), People and Buildings, New York, Basic Books, 1972, 370-383.

(c) The shelves nearest the door contained video cassettes, film strips and cassettes, programmed study booklets, "Betsi" breast teaching models, and screens for the relevant visual system.

(d) The shelves at the far end contained projector/recorder cartridges, programmed study booklets, cassette tape recorders, a 3m sound on slide projector recorder, a 3m sound on slide playback unit, film strips, and recorded cassettes.

(e) Contained within the storage cabinet were additional educational materials including: pamphlets, booklets, video cassettes, etc.

(f) The file cabinets contained blank forms for each of the eight systems, to be used in patient charts.

(g) Strategically placed around the learning lab were SPENCO visual educational aids addressing drug abuse, smoking, family planning, alcoholism, and a guide to coronary care.

(h) Each learning carrel contained a note pad, pencil, privacy act statement, and an audio head set for individualized internal sound.

(5) Primary Learning Center: Room #1.

(a) Size -- 10' X 23': was large enough to accommodate six patients comfortably. However, may seat ten patients.

(b) Furniture and Facilities.

1 one 54 inch circular table with four posture conforming chairs,

2 two sets of five wall mounted shelves,

3 one lectern,

4 two legal size five drawer file cabinets,

5 six study carrels with posture conforming chairs,

6 one metal cabinet (LUXOR, Portable) A/V, containing Sony television monitor unit and a Sony 3/4 inch video cassette play back unit, and

7 one 18" X 35" X 60" metal, double door storage cabinet.

(6) Secondary Learning Center: Room #2.

(a) Size — 6' X 12': was large enough to accommodate one patient comfortably. Also used for storage.

(b) Furniture and Facilities.

1 one study carrel,

2 two posture conforming chairs,

3 one metal cabinet (LUXOR, portable) containing a Sony television monitor and a Sony 3/4 inch video cassette playback unit.

4 one 2' X 5½' built in storage cabinet with stainless steel sink, and

5 two 25" X 31" wall hung metal cabinets.

(7) Secondary Learning Center: Room #3.

(a) Size — 7' X 9': large enough to accommodate two patients.

(b) Furniture and Facilities.

1 two study carrels,

2 one metal cabinet (LUXOR, portable) containing a Sony television monitor and a Sony 3/4 inch video cassette playback unit,

3 one 24" X 37" X 38" built in storage cabinet with stainless steel sink, and

4 one 13" X 32" X 36" wall hung metal cabinet with sliding glass door.

(8) Health Educator's Office.

(a) Size — 9' X 11'.

(b) Furniture and Facilities.

1 one study carrel,

2 two 18" X 28" legal size five drawer file cabinets,

3 one 34" X 44" single pedestal desk,

4 three posture conforming chairs,

5 four rows of 12" X 48" wall hung shelves,

6 one 24" X 37" X 38" built in storage cabinet with stainless steel sink,

7 one 13" X 32" X 36" wall hung metal cabinet with sliding glass doors, and

8 one T.V. monitor.

(9) General description common to learning center and additional facilities:

(a) Room size and Cloistering: Although several separate rooms satisfactorily fulfilled the learning center requirements, one large learning center would have been more desirable.

(b) Wiring: Adequate double outlets were not present. The deficiency was compensated for by purchasing several spider boxes. Raceways were provided for in the construction of the new outpatient facility.

(c) Artificial Light Control: Adequate, all rooms had four double rows of diffused flourescent lights. However, a dimmer switch was lacking.

(d) Acoustical Conditioning: None, very distracting.

(e) Air Control: Provided by engineer controlled thermostats. Very poor.

(f) Color: Ther rooms had cream colored walls but were very soiled. The PACOMED staff painted the walls a biscayne blue.

(g) Reflective Surfaces: Adequate. A dimmer switch was needed to enhance the visual presentations.

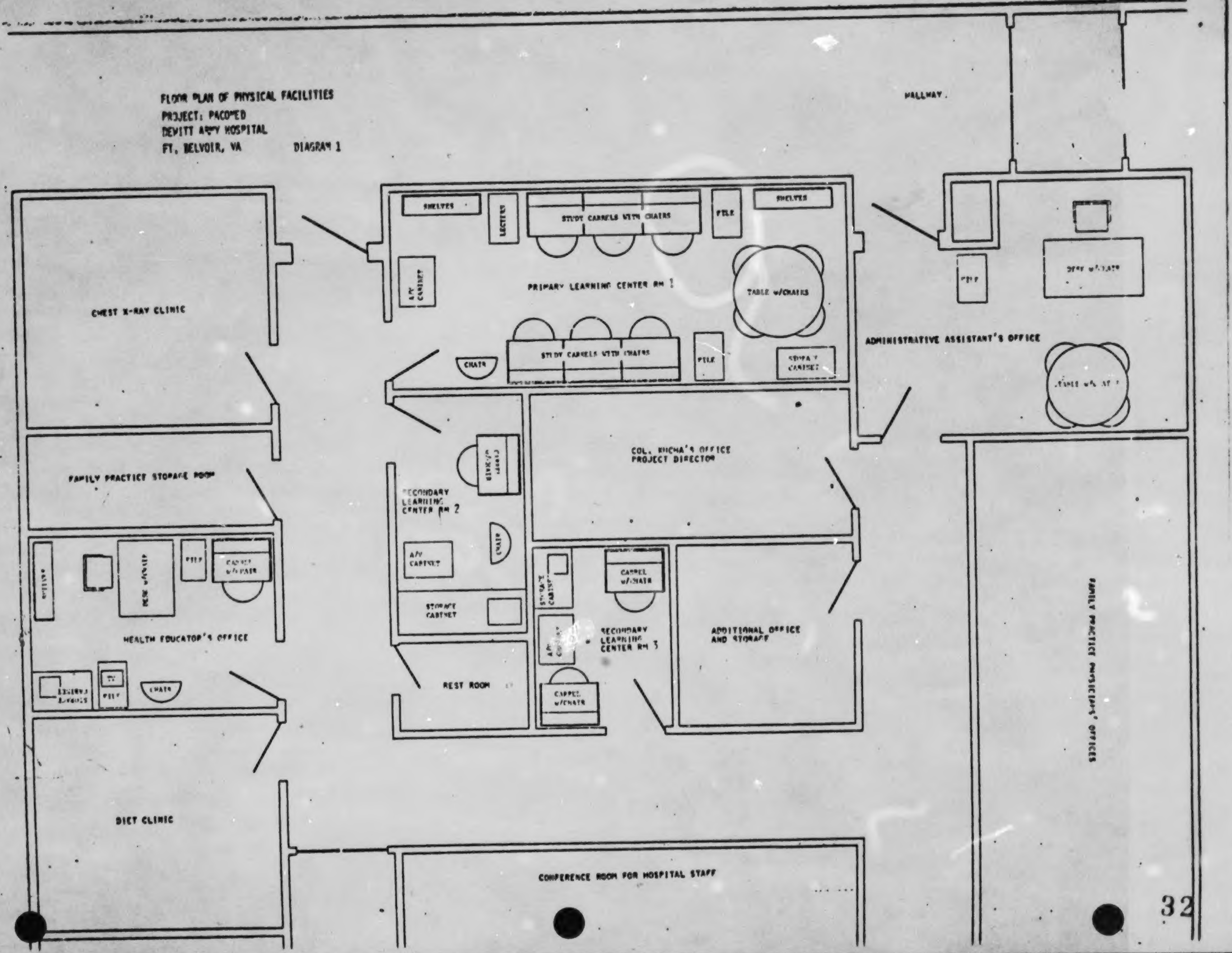
(h) Rest Room Facilities: Only one for all of staff and patients.

(i) Seating and Table Surfaces: Excellent.

(j) Study Carrels: Excellent.

(k) Audio-visual Hardware: Excellent.

FLOOR PLAN OF PHYSICAL FACILITIES
PROJECT: PACOMED
DEVITT ARMY HOSPITAL
FT. BELVOIR, VA DIAGRAM 1


HALLWAY
SHELVES
LECTERN
STUDY CARRELS WITH CHAIRS
FILE
SHELVES
A/V CABINET
PRIMARY LEARNING CENTER RM 1
TABLE w/CHAIRS
STUDY CARRELS WITH CHAIRS
CHAIR
FILE
STORAGE CABINET
ADMINISTRATIVE ASSISTANT'S OFFICE
FILE
DESK w/CHAIR
TABLE w/CHAIRS
CHEST X-RAY CLINIC
FAMILY PRACTICE STORAGE ROOM
CARREL w/CHAIR
SECONDARY LEARNING CENTER RM 2
CHAIR
A/V CABINET
STORAGE CABINET
COL. KUCHA'S OFFICE PROJECT DIRECTOR
SHELVES
DESK w/CHAIR
FILE
CARREL w/CHAIR
HEALTH EDUCATOR'S OFFICE
CHAIR
FILE
STORAGE CABINET
CARREL w/CHAIR
A/V CABINET
SECONDARY LEARNING CENTER RM 3
CARREL w/CHAIR
ADDITIONAL OFFICE AND STORAGE
REST ROOM
FAMILY PRACTICE PHYSICIANS' OFFICES
DIET CLINIC
CONFERENCE ROOM FOR HOSPITAL STAFF

31

b. Findings.

The existing patient learning center and accompanying office spaces functioned fairly well as small-group (five to ten patients) and individual study facilities. The physical limitations soon became apparent, but did not hamper the main evaluative efforts.

c. Discussion.

(1) Room Size and Cloistering.

In the PACOMED learning center the issue of cloistering was reflected in the level and manner of seclusion provided by a carrel. Unfortunately portions of the pilot test of the existing patient learning center were hampered due to room size. For example, the effects of different levels of cloistering and size of the cloistered area effects on patient performance could not be readily tested. Nor could the revalidation of previous studies be conducted, that suggest that performance decreases as room size increases because of the time and space constraints of the overall study.[41,42]

(2) Wiring.

(a) Wiring arrangements for instructional areas must take into account the need for access to both power and communication channels. With respect to the first, care should be taken that the system is adaptable to future needs and can be altered easily and inexpensively. At least two double outlets (minimum) should be placed on each wall of a small sized patient learning center. Each such outlet should be grounded and fused for no less than 20 amperes at 110 volts AC. If these power requirements do not exist, spider boxes can be used quite effectively at a minimal cost ($12.00/spider box).[43]

(b) Raceways should be provided for communication units both within the learning center and between other areas of the hospital care facility (to the television studio, as in Eisenhower Army Hospital, for example). This posed no problem for the study because closed circuit television was not used. However, it would be shortsighted not to include this additional contingency in any new AMEDD construction.

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[41] Rapaport, A. and Kantor, R.E., "Complexity and Ambiguity in Environmental Design," American Institute of Planners Journal, 1967, 33: 210-221.

[42] Sommer, R., Personal Space: The Behavioral Basis of Design (Englewood Cliffs, N.J., Prentice Hall, 1969).

[43] Green, A.C. et al., Educational Facilities With New Media, National Education Association, Washington, 1966.

(3) Artificial-Light Control.

(a) Experts generally agree that light should be adequately diffused and shadow-free in all parts of the learning center. The Institute of American Architects and the Illuminating Engineering Society Standards for Schools recommend 30 footcandles as the minimum light level.

(b) Illumination on work surfaces should be equal to or greater than that on other surfaces in the field of view. Dimmer switches should also be considered in planning.[44,45]

(4) Acoustical Conditioning.

(a) Increasing uses of audio-visual resources of many kinds make it essential to provide adequate acoustical conditioning of instructional areas. This is not a problem in most clinical environments because the building plans include specifications pertaining to maximum reverberation, as well as maximum sound transmission through walls, heating ducts, and the like. This was done to insure patient and health care provider privacy as well as meet American Hospital Association Standards for environmental conditions.

(b) This did present a problem for PACOMED in that the study area was the only area in the new outpatient facility at DeWitt Army Hospital, Ft Belvoir, VA that had not had acoustical conditioning. Additionally,it is recommended that rugs be put on the floors to improve room acoustics, thus heightening the effectiveness of various communications experiences. Again, this does not represent an additional problem or cost, most modern health care facilities are using carpeting to muffle sound and lower maintenance and housekeeping costs.

(c) The room noise level itself should be no greater than 35 to 40 decibels.[46] If acoustical conditioning is not possible (as was the situation for PACOMED) it is felt that the use of individual headphones is an efficient cost effective way to reduce distraction and enhance patient concentration.

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[44] *Setting Up a Room: Creating an Environment for Learning*, 16mm film, sound, color, Campus Film Distributors, 1967.

[45] Teachey, W.G. and Carter, J.B., *Learning Laboratories: A Guide to Adoption and Use* (Englewood Cliffs, N.J., Educational Technology, 1972), 29-32.

[46] Ibid., 15.

(d) This study demonstrated by observation, not by measurement that for many patients, noise stands out more and is more distracting against a background of silence than one of general ordered activity. It was also noted that unexpected noise distractions detrimentally affected task performance efficiency and decreased the tolerance for frustration. These findings are congruent with studies conducted by Sanders, 1961, and more recently Theologus and others, 1974.[47,48] Their data show that unexpected noise distraction or unexpected variations in noise level appear to require some adaptation by the individual at some psychic cost. Dansereau and others (1975) developed and assessed a learning strategy program that included practice in coping with distractions while applying techniques to help the learning of prose materials (three 1,000 — word passages under different levels of audio distraction). During post-hoc analysis they found that the mean total performance of Rotter scale division externals was significantly lower than internals when reading under conditions of audio distraction.[49] It was noted by observation that the PACOMED subjects in the hypertension study that scored high on internals also performed better under conditions of distraction.[50] It could probably be inferred that the internals are better able to concentrate. The effects of distraction on learning would appear to require further careful study noting that individual differences would be involved.[51]

(5) Air Control.

(a) Heating, cooling, and ventilating systems should cause neither drafts nor noise. Each health educator should be able to control ventilation in the patient learning center. At any one time, a ventilation system should provide six to ten complete changes of air per hour, and at least 10 cubic feet of air per patient each minute.[52]

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[47] Sanders, A.E., "Influence of Noise on Two Discrimination Tasks," Ergonomics, 1961, 4: 243-257.

[48] Theologus, G.C., Wheaton, G.R., and Fleishman, E.A., "Effects of Intermittent, Moderate Intensity Noise Stress On Human Performance," Journal of Applied Psychology, 1974, 59 (5): 539-547.

[49] Dansereau, D.F. and others, Development and Assessment of An Effective Learning Strategy Program, AFHRL-TR-75-41, Lowry AFB CO; Technical Training Division, Air Force Human Resources Laboratory, June 1975.

[50] Kucha, D.H., A Comparative Evaluation of the Traditional Versus a Systems Approach for Hypertensive Patient Education, Final Report, August 1977, HCSD, AHS, FSHTX.

[51] Glass, D.C. and others, "Psychic Cost of Adaptation to an Environmental Stressor," Journal of Personality and Social Psychology, 1969, 12: 200-210.

[52] Brown, J.W., Lewis, R.B., and Harcleroad, F.F., AV Instruction Media and Methods (New York, McGraw-Hill Book Company, 3rd Edition, 1969), 72-75.

(b) The air control for PACOMED was very poor and dependent upon the monitoring of the hospital engineers. During the summer months it was especially close, causing discomfort for all participants.

(6) Color.

(a) Biscayne blue was the color of the PACOMED rooms. The color was attractive and offered a non-competing background for the health education posters and realia that brightened the areas.

(b) Room colors should be chosen with careful consideration to room orientation and gerneral effects required. Colors may vary considerably, depending upon the room's exposure. Pastel colors were suggested to help with lighting and light control.[53]

(7) Reflective Surfaces.

Reflective surfaces did not present a problem because only a television receiver was used. However, the use of a dimmer would have provided more optimum conditions. For effective use of most projected material, illumination in the room, and on the screen itself, should not exceed 1/10 footcandles.[54]

(8) Rest Room Facilities.

The rest room facility for the study was inadequate. If possible, facilities for both men and women should be provided with acoustical conditioning and ventilation.

(9) Study Carrels.

(a) The patients and staff felt the study carrels used for the pilot test were adequate.

(b) When constructing a study carrel, Orr (1972) states that there is no need to make vertical dividers over two feet above the table, since the possibility of visual distraction is restricted while avoiding a claustrophobic situation.[55] Brucker (1970) compared learning performance in a carrel to learning performance in a small seminar room. He found that high anxiety subjects in an enclosed environment (carrels) performed significantly poorer than the three other groups. Personality and environment interact, and sometimes negatively.[56]

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[53] Ibid.

[54] Ibid.

[55] Orr, J.M., Designing Library Building for Activity (New York, Academic Press, 1972).

(c) It can be concluded that while privacy does not have a high absolute positive value in and of itself, when there is limited choice, properly designed study facilities to ensure individual seclusion would be extremely important for some patients. Since certain kinds of tasks performed during learning would require disciplined concentration, seclusion can be of assistance.[57]

(10) Social Interaction.

(a) High levels of individualized seclusion inhibit social interaction. One potentially critical interaction is between the patient and the health educator. When the carrel design does not permit patient/health educator interaction, another location must be provided. PACOMED found that having a separate health educator's office was highly successful. It afforded privacy for individual patient counseling, enhanced the authoritative role of the health educator, provided the patient assurance of help when required, and provided variety in the learning locale.[58]

(b) Throughout the project it was customary to have six to ten patients per session, however at times due to professional priorities or minimum referrals, the scheduling was arranged with just one patient. It was difficult to detect if the isolation inhibited the learning process. Whether patients learn best by themselves remains in doubt.[59] Sullivan and others (1974) report in their survey of learning centers that when the program of the learning center isolates students during instruction, those objectives in which personal interaction is an important element may be ignored.[60] Lee (1968) emphasizes the need for grouping in an individualized program as she suggests that groups are formed differently, for different lengths of time.[61] Payne (1968) observes that with programmed materials the most satisfactory social group contains between four and ten pupils.[62]

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[56] Brucker, P.J., "Effects of an Enclosed Individual Learning Environment Interacting with Two Personality Traits on the Achievement and Opinions of College Students Learning Through the Use of Programmed Instruction," Dissertation Abstracts, 1970, 31, 52, A-53 A.

[57] Jussim, E., "Personal Space and the Media Center," School Media Quarterly, 1974, 2 (3): 189-193.

[58] Hall, E.T., "Environmental Communication," In A. Esser (Ed) Behavior and Environment (New York, Plenum Press, 1977), 247-256.

[59] Love, W.P., "Individual Versus Paired Learning of an Abstract Algebra Presented by Computer Assisted Instruction," Tallahassee: CAI Center, Florida State University, 1969, (AD 696-126).

[60] Sullivan, D. and others, A Survey of the Present-State-of-the-Art in Learning Center Operations, AFHRL-TR-74-11, Lowry AFB, CO: Technical Training Division, Air Force Human Resources Laboratory, 1974.

(c) It was apparent through observation by the PACOMED staff that group size, in the PACOMED Learning Center was dependent upon the topic area and the social characteristics of its constituents.[63] It was very desirable to have group interaction after individual study with the breast self examination module. However, individual study alone was much preferred for the vaginitis module.

(11) Seating and Table Surfaces.

The chairs, desks, and tables ordered for PACOMED were not designed to be easily movable. Not infrequently the patients and health educators complained. Therefore, it was agreed that chairs and tables should be movable (designed for flexible groupings), quiet, and comfortable, (the right height with good posture support). Swivel chairs with casters would be ideal.[64]

(12) Based on the observations and experiences of the PACOMED staff and a study of the literature, the following criteria for the physical facilities of a learning center are listed:

(a) Physical Facilities.

1 Size. A small-group facility would be designed to accomodate six to ten patients. The minimum room size would be 300 square feet, preferably 450 square feet (15' X 30'). The size will be dependent on space allocations, type of installation, and patient flow.

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[61] Lee, D., "Do We Group in an Individualized Program," Childhood Education, 1968, 45: 197-199.

[62] Payne, K., "Social Factors in the Classroom," In W. Drum and C. Holroyd (Eds), Aspects of Educational Technology, Vol 2, London, Methuen and Co., 1968.

[63] James, J., "A Preliminary Study of the Size Determinant in Small Group Interaction," American Sociological Review, 1951, 16: 474-477.

[64] Van Cott, H. and Kinkade, R.G., Human Engineering Guide to Equipment Design, Washington D.C.: U.S. Government Printing Office, 1972. (Ref. Ed.).

2 Wiring. Minimum requirements of a small sized learning center would be two double outlets on each wall. The outlets should be within easy access to each study carrel and either end of the room. Raceways should be provided for communications units both within the learning center and between other areas of the hospital care facility.

3 Artificial-Light Control. The light should be adequately diffused and shadow free in all parts of the learning center. Thirty footcandles is recommended as the minimum light level. Light control with dimmer switch should be in the immediate area of the health educator's station.

4 Acoustical Conditioning. The acoustical conditioning should be controlled by wall coverings (acoustical tile or plaster) and rugs on the floors plus the use of headphones for each patient.

5 Air Control. Heating, cooling, and ventilating systems should cause neither drafts nor noise. The temperature range as per governmental energy control standards, should be from 68 degrees F. in the winter to 78 degrees F. in the summer and the humidity between 45 and 55 percent with adequate air circulation. It should also be thermostatically controllable and monitored by the health educator.

6 Color. Colors may vary considerably, depending upon the room's exposure. Pastel colors are suggested to help with lighting and light control.

7 Reflective Surfaces. For effective use of most projected material, illumination in the room should not exceed 1/10 footcandle.

8 Rest Room Facilities. Should be provided for both men and women in the immediate area.

(b) Furniture and Arrangement. (Diagram 2, page 24.)

1 Carrels. To afford flexibility a "mix" of types of carrels is recommended, rather than a standardized type. The vertical dividers should not be over two feet above the table area. Study carrels should be used for individualized instruction with a minimum of six and preferably ten patients per small sized learning center.

2 Cloistering of Carrels. If feasible the carrels should be broken up visually so that they do not have a barnlike, regimented apprearance. If space is at a premium there should be no more than five carrels along one wall. Carrels should be arranged to ease the traffic flow, since patients leave at different times.

3 Social Interaction and Group Size. The interaction and size of the group is dependent upon the topic area (disease entity) and the social characteristics of the patients. The optimum group size is between six to ten patients.

4 Conference Table. At least one round conference table should be included in the furniture to provide opportunities for various forms of interaction and face-to-face learning activities. When patients are at the carrels the conference table may also serve as the health educator's station.

5 Seating and Table Surfaces. Chairs and tables should be movable (designed for flexible groupings), quiet, comfortable, the right height, with good posture support. Swivel chairs with casters are suggested.

6 Learning Materials Storage. The learning center should include shelving both open and visible,and hidden (cabinets) shelves to store booklets, 3/4 inch audiovisual cassettes, etc.

(c) Additional Facilities.

1 Health Educator's Office. Should include a desk, two chairs, and a minimum of two file cabinets. The number of file cabinets would be dependent on the patient case load. This office is essential for baseline collection and individual counseling.

2 Storage Area and Supply Room. Should be large enough to adequately store blank forms, patient charts, and additional (back-up) audiovisual equipment, and two files cabinets. The recommended room size is 9' X 11'. However, it may be smaller.

(d) Audiovisual Hardware.

1 3/4 inch video cassette playback unit, 21 inch color T.V. receiver and console. This proved to be the most cost effective and reliable mode. In addition, it is recommended to have the hardware stored in a console for safety, dust free environment and flexibility of movement. Units have been known to fail, so a backup component is advised.

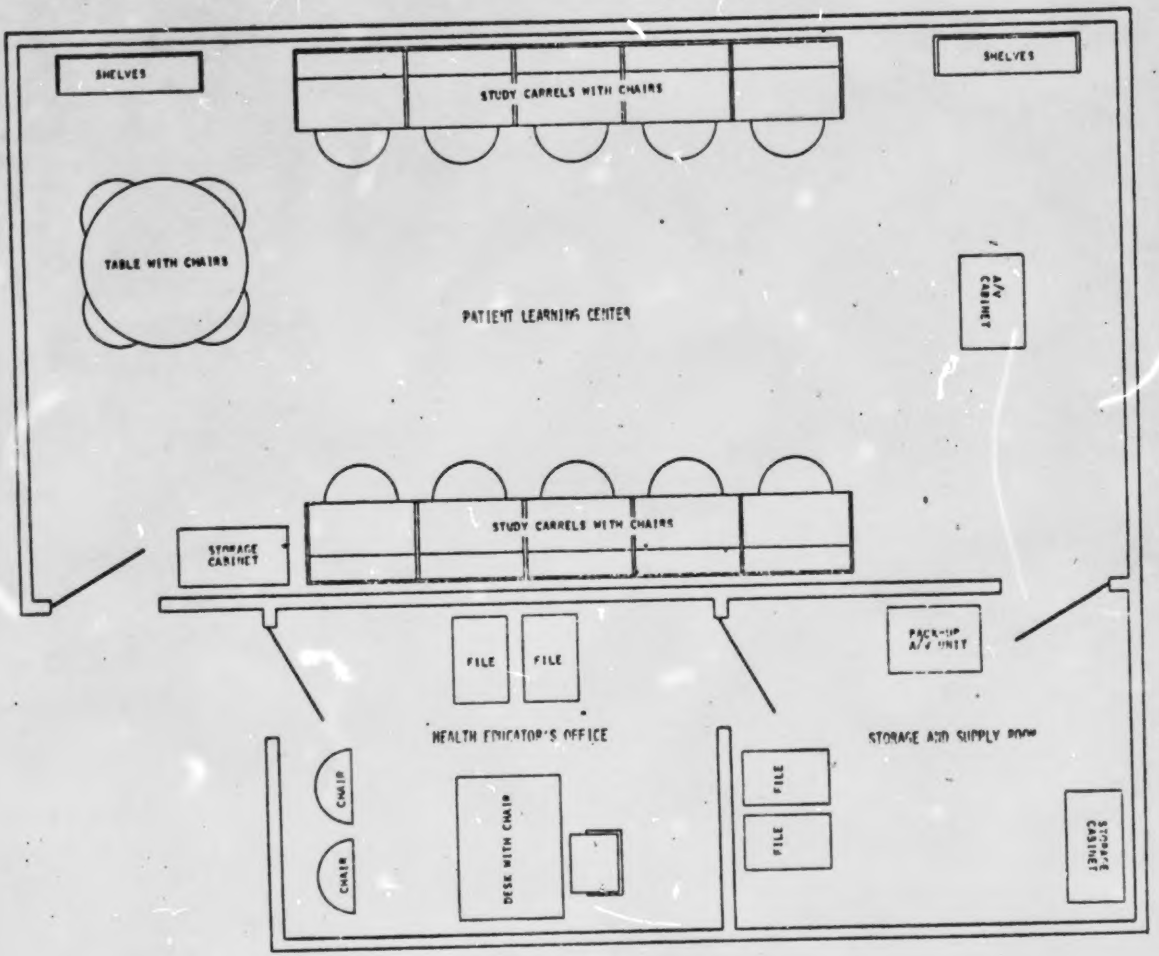
2 Headphones. Should be used to afford the patients a better opportunity to concentrate. Eleven for a small sized learning lab is recommended. Ten for patients plus one for the health educator's monitoring function.

3 Refer to the section on communications media, para 5, for a further discussion of this subject.

(e) Location of the Learning Center.

The learning center should be readily accessible to patients and have an adequate waiting area, and if possible, convenient parking.

GENERAL REQUIREMENTS
FOR A PATIENT
LEARNING CENTER DIAGRAM 2



(f) Costs.

1 General Requirements. Space allocations and general requirements do not have a cost attached because existing resources will be utilized. This would be a cost to the AMEDD with or without the patient learning center. Pointed out in the discussion was the fact that all health care facilities have similar general requirements because of American Hospital Association Standards and other clinical factors.

2 Furniture, Shelves, and Cabinets.

(a)	10, one station carrels	@139.00	$1,390.00
(b)	one 48" diameter table	@107.50	107.50
(c)	16 chairs-plastic posture forming shell	@ 22.39	356.84
(d)	2 sets of display shelves (5 shelves/set and hangers)	@ 53.60	107.20
(e)	two storage cabinets (18" X 35" X 60") with shelves	@ 85.00	170.00
(f)	4 file cabinets	@250.00	1,000.00
(g)	one desk--Pedestal	@250.00	250.00
		cost	$3,381.64

3 Audiovisual Hardware.

(a)	2 color T.V. receivers—21" screen	@487.00	$ 974.00
(b)	two 3/4" video cassette playback units	@884.30	1,768.60
(c)	2 cabinet, consoles	@329.00	658.00
(d)	11 headphones	@ 13.70	150.70
		cost	$3,551.30

Estimated Maximum Cost	Approximately	$7,000.00

(13) Unfortunately, many existing AMEDD health facilities will not have the potential to develop the patient learning center and additional facilities just described. In most cases some of the desirable requirements will be lacking, or else they will fall far below the standards suggested here. Some space allocations may have lights but no power outlets. Others may need paint, or lack proper ventilation. Such problems need not keep the conscientious health care worker from making adequate use of patient education media. Inventive health care workers all over the country have devised ways to use media despite unfavorable conditions. An environment favorable to learning can be created in almost any room in a health care facility. All that may be needed is some "creative imagination." The

general requirements and costs were based on the optimum not the minimum. For example, the PACOMED project did not purchase all the furniture or audiovisual hardware to conduct the study, most of the furniture and equipment was borrowed very easily because of under-utilization of existing resources. Two 3/4 inch video cassette playback units, two, 21 inch television receivers and two consoles were loaned to the project for two years. The space allocations given to conduct the study were rooms previously used by another study group, plus two vacant storage rooms. When requirements couldn't be met any other way improvisations were accomplished. Even in older buildings, relatively inexpensive improvements can be made to facilitate the patient education process.

(14) The maximum requirements would not cost more than $7,000.00 to set up a patient learning center, health educator's office and storage. Or to draw an analogy not more than existing cost for patient information (given by physicians and nurse clinicians based on Hypertensive and Diabetic patient case load) in one month for the Internal Medicine Clinic at DeWitt Army Hospital, Fort Belvoir, Virginia.

5. COMMUNICATIONS MEDIA.

a. Procedures.

(1) In July 1976 the final report for the Strategy for Instructional Systems Design and Formative Evaluation was submitted.

(2) In that report under findings the results of testing three different types of educational hardware were given. In essence the findings were: the PACOMED staff found the video cassette format was cost-effective and reliable. Additionally, the playback unit allowed for: (a) ease of operation, (b) could be reversed for review without losing a portion of the program, (c) was very quiet during operation, (d) was less expensive to reproduce a program than the other formats, and (e) could be a cost savings since most Army hospitals already have the video playback units available to them.[65,66,67,68,69,70]

(3) The following deals only with a description of the selection of the "messenger to carry the message" (the format and/or media selection).

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[65] Kucha, D.H., The Design, Development, and Evaluation of An Empirical Model of An Outpatient Health Information and Management System, Unpublished Doctoral Dissertation, The Catholic University of America, Washington D.C., 1973, 93-123.

[66] Bretz, R., A Taxonomy of Communication Media (Englewood Cliffs, N.J., Educational Technology Publications, 1971), 5.

[67] Allen, W.H., "Intellectual Abilities and Instructional Media Design," A/V Communication Review, 1975, 23: 139-170.

[68] Levie, H.W. and Dickie, K.E., "The Analysis and Application of Media," In R.M.W. Travers (Ed.), Second Handbook of Research on Teaching (Chicago, Rand McNally, 1973), 858-882.

[69] Kanner, J.H. and Rosenstein, A.J., "Television and Army Training: Color vs Black and White," A/V Communication Review, 1960, 8: 243-252.

[70] Kucha, D.H., Strategy for Instructional Systems Design Process and Formative Evaluation, Final Report, July 1976, HCSD, AHS, FSHTX, 13-15.

b. Findings and Related Discussions.

(1) Utilizing the Army's Existing Resources.

The Army started using video units in late 1970 (Recommendations were derived from a study conducted by the Combat Training Board 1970). Then after standardization of 3/4 inch tape by several major companies, the Army did their "major buy" between the years of 1971 and 1974. Because of the Army's enormous investment in studios, equipment, etc., this format will be used until at least 1985. Consequently, in light of cost effectiveness the format was basically predetermined prior to the conception of project PACOMED. In most military installations and hospitals,aside from lectures, television is the primary medium of instruction. Therefore in this area, no major investments would be needed to utilize the 3/4 inch videocassette format for patient education.[71]

(2) Adult Education.

America leads the world in Adult Education. Almost any issue of any popular magazine or Sunday supplement will provide advertisements for a dazzling display of self-improvement courses. The total number of adults occupied in adult education is conservatively estimated to be half of our population. This apparent thirst for self-improvement can be used to advantage by health planners and providers alike by giving the consumers the health information and education they are seeking and asking for. One does not need to be a Jules Verne to grasp the possibilities and potential outlets for videocassettes. In fact, in the not too distant future the patient education programs can be given to the patients to play in the convenience of their homes. Videocassette (and soon videodisc) technology has the power and the mode to spread patient education and information more widely and make its surface attractions even more interesting to the general public through proper programming and advertising. Also, through evaluation,hazards may be prevented, and losses may be anticipated. It requires, first, prescience and second, organization, before the technology of videocassettes inundates the consumer patient education market, that is, soon. Videocassettes also represent a potential liberation for the health care provider by being able to provide accountability in the area of health education to every patient for a nominal cost.[72]

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[71] Telecon, 23 February, 1977, Major Russell, Director of the United States Army Audio Visual Activity, Pentagon, HDQ's, Dept of the Army.

[72] Gordon, G.N. and Falk, I.A., *Videocassette Technology in American Education* (Englewood Cliffs, N.J., Educational Technology Publications, 1972), 106-119.

(3) Compatability with the Instructional Systems Design Process.

(a) When used for patient education, videocassette would require a clear distinction between the delivery system and the development system. This distinction is necessary because the initial instructional content needs to be stored in a modifiable medium. (PACOMED used primarily the 3m Sound on Slide for developmental purposes). A completely separate system with easily modifiable storage allows for development, evaluation and revision of the instructional content. Only after the developmental process is completed can the instructional content be recorded on a master video-tape. The master tape can then be used for duplication purposes.[73]

(b) Implementing these kinds of systems will not be a matter of simply waiting for the appropriate hardware. The major feasibility questions do not revolve around the communications technology, but around an instructional technology. To be really cost-effective, videocassettes must be duplicated in reasonable numbers (economy of scale); and, therefore, a reasonable number of health care facilities, professionals and patients must agree to use them. This acceptance will not occur unless the instructional content put on the videocassette really works well. And it's not likely to work well unless it was developed and tested by people who have a pretty good idea of how to do the job right the first time. Unfortunately, instructional developers of such caliber are very few in number. Most videocassettes have been developed as if they were to be given as class lectures, and as a result they haven't turned out to be much of an improvement over presentations that they were designed to replace.[74]

(4) Relaying Instructional Objectives.

(a) The thinking in education has been changing its direction. The great body of research in the early years, generated seemingly in the hopes of finding some magical quality of the television medium itself that was independent of content and teaching strategy, came up with the unanimous but disappointing verdict: No significant difference. It was still the same lock-step instruction--presentation of information--with learning measured by the same tests. Mainly because objective tests were used, it was only cognitive learning that was being investigated. Instruction in skills was considered inappropriate to television, or beyond its capabilities. The achievement of affective objectives was considered totally beyond measurement.

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[73] Carl, D.R., "Instructional Development In Instructional Television," Educational Technology, May 1976, 16 (5): 10-24.

[74] Ibid.

(b) Today the thrust is more in the direction of individualization. In patient education emphasis is upon the patient assuming more responsibility and to assume an active role for managing his own disease, within the range of choice allowed by the health care facilities and health care providers.

(c) The new approach reduces the role of lesson presentation by the health care provider, and tends to emphasize other roles for health care provider and patient alike. Interestingly the technology of television has now become better adapted for use in these other instructional activities, such as skills learning,and can be used in the individual mode as well as "instructional TV" that was researched so widely some two decades ago. The technology has vaulted ahead of the research conclusions.[14]

(5) Videocassette and Cartridge Capabilities.

Names.

(a) MAGNETIC TAPE: (1/2 inch or 3/4 inch tape); Ampex (Instavision); Avco (Cartrivision); Japan Victor; Panasonic; Philips (VCR); Sony (U-Matic); and 3M Company.

(b) Compatibility and Standardization: No possibility among the several systems except for Sony, JVC, and 3M, who have agreed on 3/4 inch tape cassette format. The other companies have a 1/2 inch reel to reel.

(c) Recording Potential: Yes, instant.

(d) Cost of Playback Equipment: Medium to high, about $1,000 to $1,500.

(e) Cost of Recording Medium: High, about $18,000 to $22,000.

(f) Video Picture Quality: No single system has an inherent substantial picture quality advantage over any other using broadcast standards as a reference.

(g) Reliability of System: Average, 200 to 300 runs. It is dependent on the operator and preventive maintenance.

(h) Ratio of Playing Time to Duplication Time: No high speed duplication.

(i) Cost of Duplication of 12 Copies: Low.

(j) Cost of Duplication of 500 Copies: Medium, $20.00/hr.

(k) Cost of Duplication of 10,000 Copies: Low.

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[75] Bretz, R., "In-School Television and the New Technology," Educational Technology, May 1976, 16 (5): 50-53.

[76] Op. Cit., Gordon & Falk, 150-153.

(l) Ability Erase Reuse Record Medium: Yes.

(m) Playing Time: All systems may, one way or another, achieve equivalent playing time up to one hour.

(n) Single Frame Storage Potential: No, can only freeze in place.

(o) Video Playback Pickup Method: Helical scan magnetic head pickup.

(p) Major Market Control: Consortia of US and Japanese.

(6) By 1980 thought should be given to evaluating the use of videodiscs for the patient education format. The hardware advantages are already superior to the videotape players. The optical videodiscs are free of the wear factors characteristic of videotape players, provide very high density of information storage, and compared with the prior art, are delightfully easy on the pocketbook; a player will cost about $500.00 and the discs should cost about $2.00 to $5.00 each, depending upon program material. In addition the cost of duplication drops quite rapidly with any real volume (See Table 1, Typical Costs of A/V Reproduction Equipment and Table 2, Per Copy Costs for a One-half Hour Motion Visual Program, p. 32) and over a five year period by using videodiscs instead of videotapes the average annual cost can be reduced by 42 percent. It is important to realize that the economic advantage of videodiscs is due to their durability and ruggedness, as well as to their low purchase costs. Videotape cassettes are good for two to three hundred plays. With optical videodiscs, fingerprints, dust and surface scratches can't penetrate the plastic "sandwich" that protects the inner reflective surface. When the disc is played, its outer surface, dust, scratches and all, is outside the focal range of the microscope objective. The player can show the same frame, hour after hour, without any degradation of the television image.[77]

(7) Videodiscs will set new standards for inexpensive large-scale media distribution. Educational use of videodiscs for the presentation of conventional linear motion pictures will probably catch on like "wild-fire." Non-linear, interactive applications will make a real contribution to the quality of education, but not until instructional development becomes a matter of production, instead of experimentation.

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[77] Schneider, E.W., "Videodiscs, or the Individualization of Instructional Television," Educational Technology, May 1976, 16 (5): 53-59.

TABLE 1

Typical Costs of AV Reproduction Equipment

1.	8mm video player and monitor	$1,592.00
2.	3/4" videotape cassette player and monitor	1,500.00
3.	Optical videodisc player and monitor	900.00
4.	16mm projector and screen	825.00
5.	8mm projector and screen	554.00

TABLE 2

Per-copy Costs for a One-half Hour Motion Visual Program

MEDIUM	QUANTITY			
	1	10	100	1000
16mm film	$417.00	$108.00	$84.52	$66.17
8mm film	285.00	66.00	52.00	44.76
3/4" videocassette	70.00	31.00	21.25	18.50
Videodisc	450.00	46.00	3.01	.63

6. THE NON-PROFESSIONAL PARAMEDIC AS HEALTH EDUCATOR.

a. Procedures.

(1) One aspect of the study plan called for the utilizing of a non-professional paramedic as health educator. It was suggested by the project director in the original study protocol that, if possible, the technician should have a non-professional paramedical background, i.e., 91C or LPN. This was necessary in order to study the feasibility of having a non-professional coordinate the utilization of the patient education packages once the instructional models were developed. If the results of utilizing this caliber of personnel proved positive it would save professional time and be much more cost-effective. Further, it was hypothesized that the individual selected to develop the role would possess qualities needed for the evaluative aspect of the study, but qualities not necessarily needed to manage a patient learning center. Therefore, a mature 91C, E/7, was selected.[78,79,80,81]

(2) In order to prepare the non-professional paramedical health educator to assume and critically develop the role, a series of logical, systematic planned experiences were accomplished. The potential health educator joined the staff in April 1975, after the assessment phase was completed, physical area decorated and furniture and equipment ordered. Consequently, the first three months were spent in learning about the concept, study plan and study outcomes completed up to that time. From July of '75 to July of '76, the eight learning systems were developed, revised, and validated. During the instructional systems development and formative evaluation phase the study plan called for developing the health educator's role and revising it (adding or deleting functions) until a point was reached when it was felt that the 91C could assume the full responsibility. In the year's time, the health educator was coached, given selected reading materials, continuing education, and an array of simulation exercises. Additionally, he assisted with the patients used for the validation process, and gained in competence with each succeeding system.

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[78] Decker, B. and Bonner, P., PSRO: Organization for Regional Peer Review, (Cambridge, Mass, Ballinger Publishing Company, 1973), 134-135.

[79] Weckwerth, V.E., "How to Use and Misuse Average Length of Stay Data," Modern Hospital, October 1965, 105: 114-117, 176.

[80] "Health Education: Role and Responsibility of Health Care Institutions," Statement, American Hospital Association, Chicago, Illinois, 1975.

[81] Jamplis, R.W., "The Practicing Physician and Patient Education," Hospital Practice, October 1975, 93-99.

(3) Within six months of opening the learning center, by Dec '75, it became apparent that one health educator was not enough due to the additional evaluation functions required (i.e., collecting data on the control group at Ft. Myer, telephoning subjects for follow-up and the clerical and administrative duties associated with studies). And, as was mentioned earlier, one of the primary thrusts of Project: PACOMED had been to improve cost-effectiveness by the utilization of non-professional personnel for patient education. It was postulated that the technical-mechanical aspects could be administered by an E/4 or E/5. In practice, it became apparent that a well-qualified individual of this low rank could carry out many of the functions that were being performed by persons of higher rank and education. In April 1976, an E/5 was added to the staff enabling this element of the protocol to be implemented and evaluated.

b. Findings and Related Discussions.

(1) Prerequisites.

(a) Educational Qualifications.

1 Graduate of the 91C20, Clinical Specialist course.

2 The scope of instruction for the 91C20 includes: Military publications and correspondence; medical records and reports; interpersonal relations; techniques of instruction; techniques of management; Army medical field service; emergency medical and dental care; medical management of mass disaster casualties; military preventive medicine; introduction to medical science; pharmacology and patient care; concepts of patient care; medical surgical nursing; mental health and mental illness; care of obstetrical patient and the new born; care of the pediatric patient; dispensary procedures; surgery in the Army dispensary and health facility; and clinical experience.

3 Length: 40 weeks.

4 Prerequisites to attend the 91C20, Clinical Specialist course.

5 High school graduate or the equivalent as measured by GED tests. Must have credit for high school level course in mathmatics or have a standard score of 45 or higher in GED test 5, high school level. An interview by and written recommendation from an Army Nurse Corps officer or, when not available, a Medical Corps officer, as to the applicant's interest in patient care, potential and physical suitability for the course. Standard score of 100 or higher in aptitude area GT or ST. Must have successfully completed 91B10 training conducted at the AHSUSA, and have a minimum of 18 months clinical experience. Twenty-four months or more of active duty service remaining after completion of the course. No security clearance is required.[82]

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[82] Army Medical Department Course Catalog, Fiscal Year 1976 (1 Jul 75—30 Jun 76) and Fiscal Year 7T (1Jul 76—30 Sep 76), 6-7, 6-10.

(b) Physical and Behavioral Characteristics.

1 Be well groomed, possess military bearing, have normal weight, be a non-smoker, and moderate to light in alcoholic and caffeine consumption. It is desirable that the health educator must be a role model and help teach individuals how to cope with medical problems that are self-induced or caused by factors existing within the environment. More often than not the health educator's efforts were directed toward attacking self-imposed "diseases of choice," including smoking, alcoholism, and nutritional abuses that may ultimately lead to hospitalization.

(c) Pay Grade--E/4 or E/5.

(d) Tour.

A minimum stabilization tour of two to three years. This would allow for job security, satisfaction, and continuity of care for the patients.

(e) Training Time.

Based upon the PACOMED's staff experience, it is considered that five working days in a patient learning center are necessary. This aspect would include the following functions: (a) operating the learning center, (b) counseling, (c) maintaining records, and (d) coordinating activities. Of course, much is contingent upon each individual's background and prior educational preparation. Therefore, it is suggested that if a centralized learning center is ever developed for preparing these health educators that some type of competency testing be done. For instance, it is not uncommon for some college graduates to refuse or be denied a commission for various reasons, many of whom become 91C20s. It could be that an individual of this caliber (especially if she or he was a former teacher) would need very little in the way of new skills, but only need to learn how to implement the standardized procedures. On the other hand, it could be possible that a borderline individual would meet the prerequisites and screening procedures. This person would undoubtedly need additional training time.

(2) Procedures.

Operating the Learning Center.

(a) Because the validated learning systems have accompanying directions and flow charts for their administration, the tasks involved in operating the learning center are minimal and elementary in nature. The tasks that were identified are as follows: (a) Prepare learning center environment for learning systems presentation: 1) Insure that audiovisual equipment is operational, to include lighting and sound system, 2) Prepare individual folders for each patient. The folders contain the necessary forms for each system, 3) Insure that pencils and paper are at each carrel. (b) Insure that forms for each system are properly completed by the respective patients. (c) Prior to showing the advanced organizer give the patient a brief description of PACOMED and the educational program to be received. (d) Provide, collect, and score pre/post tests.

(e) Show audiovisual programs. (f) Assist patients as needed. (g) Maintain learning center in readiness for the following sessions. (h) Maintain form level for each system. (i) Provide first-echelon maintenance on the audiovisual equipment. (j) Conduct monthly equipment inventory and maintain inventory records. (k) Insure that the learning center is kept in a high state of cleanliness. (l) Maintain an additional set of tapes for each system in case of damage to the original. (m) Insure that the learning center and adjacent facilities are properly secured at all times.

(b) Seventy-five percent of the health educator's time was devoted to the function of operating the learning center. All of the above tasks are ongoing and not likely to change with this prototype. Forms completed by the health educator and test scoring were done while the patients were viewing the audiovisual programs. This feature maximizes the health educator's time, and eliminates delay and unnecessary waiting for the patient.

(3) Counselor.

(a) The health educator must establish rapport with each patient and family member. An open line of communication must be developed and maintained during the entire series of sessions. The initial interview is important in that the patient must feel he or she has been accepted and that there is a sincere desire for the health educator to help. The health educator worked with each patient on a personal basis. The patient was assisted to develop a sense of accomplishment initially in order to sustain motivation.[83,84] The tasks that were identified are as follows: (1) Review consultation sheets. (2) Interview patients to find out their needs. (3) Collect baseline data. (4) Determine deficiencies. (5) Develop a plan of action. (6) Provide explanations or reinforcement. (7) Encourage compliance to treatment plan. (8) Give feedback to the health care provider as needed. (9) Collect follow-up data. (10) Terminate sessions when appropriate. (11) Return consultation sheet to health care provider, denoting patient's progress.

(b) In addition the elements of good human relations should be mastered. These include: respect, acceptance, objectivity, protection, observation, evaluation, listening, communication, and action (interpersonal relations are given in the scope of instruction for the 91C20). Only when the health educator has learned successful interaction with the patient can he or she achieve their full potential in the role.[85]

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[83] Dorroh, T.L., Between Patient and Health Worker (New York, McGraw-Hill Book Company, 1974), 224-251.

[84] Teachey, W.G. and Carter, J.B., Learning Laboratories (Englewood Cliffs, New Jersey, Educational Technology Publications, 1971), 13-26.

[85] Dorroh, Op cit., 251.

(c) Ten percent of the health educator's time was devoted to counseling.

(4) Records Management.

(a) The health educator also serves as a record-keeper in maintaining accurate and adequate reports on each patient.

(b) A chief criticism of the patient learning center could be that it entails extensive record-keeping because of the personalized learning practiced and the necessity to account for this learning. Record-keeping is a very important factor to the success of the patient learning center. It was necessary, therefore, to devise procedures that kept record-keeping to a minimum.

(c) The health educator maintains a checklist for each system to insure consistency, individualization, standardization, quality assurance and accountability for each patient.

(d) The patients' personal files and cumulative records were maintained under the same regulation that all patients records are kept, AR 40-400, change 4, 1 Nov '76, MEDICAL SERVICES PATIENT ADMINISTRATION.

(e) The records were stored in locked file cabinets in the health educators' office(s). (In addition the offices had security locks on their doors.)

(f) The tasks for the record-keeping are covered in sections concerning Learning Center Operator and Counselor.

(g) The original itemized forms for each system appear in the final report for the Formative Evaluation Phase of PACOMED, July 1976.

(h) The time spent in management of records was five percent.

(5) Coordinator of Activities.

(a) The tasks enumerated in this section are not to be confused with program planning. The main focus here was the managerial functions associated with the ongoing activities of the learning center.

(b) The tasks identified that the 91C20 could successfully perform were: (1) Maintain accurate calendar of events, to include: scheduling patients, attending meetings and briefings that were germane to the operation of the learning center. (2) Insure that activities centered around the learning center were coordinated to eliminate confusion and provide optimum time utilization. (3) Establish priorities insuring that activities not directly involving the patient were secondary in nature. (4) Give initial staff orientation pertaining to the learning center. (5) Schedule ongoing orientation for newly assigned personnel. (6) Periodically reinforce professional staff. (7) Maintain liaison with professional users. (8) Give briefings to visitors of the learning center. The time consumed in this function was approximately ten percent.

(c) Because of the evaluative nature of the study it was imperative that the health educator control the scheduling of the patients. However, it is suggested that for the future the health educator provide a monthly calendar to the central appointment section that would include times and dates for scheduling the learning systems. This could save the health educator half of the ten percent that was being spent in the task.

(d) One of the most important tasks of the health educator is staff (user) orientation. In order for the learning center to be successful and utilized to maximum potential the professionals should refer all patients that need health education to the learning center. To facilitate the process the professionals need to understand the services being offered, know how to refer patients and most importantly be familiar with the contents of the learning systems. Only in this way can the communication between the consumer and health care provider be maximized and economy of medical resources and minimization of medical workload be realized.

(6) Program Planning.

(a) During the year that the learning center was fully operational, July '76 to July '77, it was felt that perhaps the non-professional health educator could also function in the area of program planning. It was found that this was not the case.

(b) In order to successfully formulate and gain acceptance of new policies in an organization, a person must have knowledge of the decision-making structure and how it operates. The larger and more diffuse organizations present complicated problems of analysis in terms of identifying the leadership and in using influence. To successfully maneuver through such complexities, in order to obtain program support across the many networks, requires competencies in analytical and organizational areas.

(c) Program planning requires skills applicable to all settings. These include knowledge of how to work with committees in the selection and recruitment of members; determination of goals; agenda building; development of appropriate background information; report writing; follow-up procedures; and solicitation of feedback.

(d) The program planner should possess facilitation skills necessary for effective problem analysis, decision-making, and problem solving. These processess require a person who is creative and receptive to input from many sources.

(e) Implied in the above are written and verbal communications skills as well as an understanding of ways interpersonal relationships are established and maintained. It is also important to have a knowledge of the health field in terms of the patterns of organizations, professional orientations, and role relationships and a knowledge of the culture of hospitals.[86]

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[86] Patient Education Workshop: Summary Report, U.S. Department of Health, Education, and Welfare; Public Health Service, Center for Disease Control; Atlanta, Georgia, 1976, 8-9.

(f) Finally, professional assertiveness is essential in order to introduce new concepts with broad-based support. Additionally, in the military because of the rank structure, there are some tasks enlisted people are "not allowed" to do even if they possess the ability. This became very apparent when the health educator for PACOMED attempted to initiate a feature story and follow-up in the Fort Belvoir newspaper, The Castle. At other times, people were not so blatant, but the nuances were apparent. The project director was approached on numerous occasions. throughout this phase of the study with "Don't you think it would be better for an officer to present this?"

(7) Costs.

The cost effectiveness of the prototype will be addressed in a separate report. However, it can be noted that by using an E/4 or E/5 in the position of health educator the cost in labor was 50 percent or less than by using an 0/3 or 0/4 Army Nurse Corps officer or 300 to 400 percent less than by using a Medical Corps officer 0/4 or 0/5 based on their respective hourly wages for mean time in grade. That doesn't take into consideration the advantages or benefits of the prototype in addition to the savings.[87]

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[87] Kucha, D.H., Stategy for Instructional Systems Design Process and Formative Evaluation, Phase 2, Final Report, HCSD, HSC, AHS, July 1976, Appendix 9.

7. PROGRAM DEVELOPMENT.

a. Staff Development and Professional Referral.

(1) This section deals with the feasibility of the non-professional paramedic's ability to approach the professional staff and have them voluntarily use the system for their patients. The outpatient clinics that participated in this phase were: Family Practice, Internal Medicine, Acute Minor Illness, Surgical, Pediatric, Orthopedic, and Diet. This phase began July '76 and was on going until August '77.

(2) Staff Development.

(a) The target group for staff development was the MEDDAC Commander, Chief of Professional Services, Executive Officer, Chief of Nursing Service , and the Professional Staff users to include, physicians, nurse clinicians, dieticians, physical therapists, and amosists.

(b) Procedures.

1 Each member of the target group received an orientation to Project: PACOMED. See Lesson Plan for Professional Staff, Appendix A, page 141.

2 Daily visits were made to each clinic for continuous reinforcement of professional staff users.

3 Most professional meetings were attended to allow the health educator to make suggestions on how to properly use PACOMED. Types of professional meetings attended were: Nursing Audit, Ambulatory Care, Chief Professional Services, Orientation of Newly Assigned Personnel, Concerned Care, etc.

4 Monthly additions to the MEDDAC professional services bulletin were made with the chief of professional service's signature. These were then distributed to the professional staff to reinforce and encourage use of the patient learning center.

5 Periodic briefings (every 2-3 months) were given to the Commander, MEDDAC, Chief of Professional Services, and Chief Nursing Services to keep them informed and to solicit program support.

6 The Chief Professional Services awarded , monthly, the physician with the most referrals a three day pass.

(3) Professional Referral.

(a) The target groups for this phase were the professional staff users: physicians, nurse clinicians, dieticians, physical therapists, and amosists.

(b) Procedures.

1 After receiving staff development the professionals were given referral forms. See Appendix B, page 148, Examples of PACOMED Patient Referral Form, SF 513.

2 Upon receipt of referral form by PACOMED an appointment was made between 7 to 10 days for the patient.

3 After the patient received the prescribed health education, follow-up appointments were made.

4 When the educational series was completed one copy of the referral form was kept in the patient's record on permanent file and the other was sent to the physician.

5 The feedback information provided was in three domains: cognitive, behavioral, and attitudinal, plus a space for specific remarks by the health educator. See examples as given in Appendix B, pages 149-156.

(4) Findings and Related Discussions.

(a) Refer to Table 3, page 42 , Comparison of Professionals Who Had Staff Development In Relation To Cases Seen and Cases Referred Pertaining to the Eight Topic Areas. For further breakdown by individual clinics see Appendix C, pages 158-159.

(b) The staff development consumed more time than it should have because it was difficult to schedule the professional users for their orientation. The reasons for this were multiple: leaves, continuing education, training, TDY, holidays, higher clinic and teaching priorities, and the indifference of most professionals toward patient education.

(c) Although the staff development was consumer oriented (how the system can help the health care provider), thorough, informative, and coupled with various types of reinforcement and incentives it proved to be relatively ineffective in changing professional users' behavior. The numbers of patients referred to the learning center in comparison to the numbers of professionals briefed was unpredictably low. The number of actual cases seen was 8,761, the number referred was 441, or approximately five percent. PACOMED had only eight learning systems. Perhaps if there would have been wider diffusion, a larger selection, and more of a critical mass, this would have been a different picture.

(d) Unfortunately, with this number of referrals it was not possible to evaluate the true capabilities of the learning center nor the range of the services that might have been provided. For example, consultant functions, services to in-patients, collaboration with health and environment section, etc.

TABLE 3

COMPARISON OF PROFESSIONALS WHO HAD STAFF DEVELOPMENT IN RELATION TO CASES SEEN AND CASES REFERRED PERTAINING TO THE EIGHT TOPIC AREAS

CLINIC		Family Practice		Internal Medicine		AMIC		Surgical Clinic		Pediatric Clinic		Orthopedic Clinic		Diet Clinic	
Months and Years	No. of Prof Staff Given Orientation	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred	Actual Number Seen	Actual Number Referred
Jul '76	17	(162)	13												
Aug '76	34	(162)	25	(164)	10	(93)	1								
Sep '76	48	139	27	89	18	72	15								
Oct '76	53	92	28	199	10	112	19	(32)	2						
Nov '76	61	131	15	248	12	96	13	35	11						
Dec '76	65	148	13	156	7	93	9	25	5	210	0	(19)	0		
Jan '77	66	279	15	165	1	81	4	27	7	471	2	26	15		
Feb '77	66	181	20	126	6	102	7	40	2	390	0	14	4	54	17
Mar '77	66	(162)	4	(164)	2	(93)	15	33	0	598	0	33	8	72	12
Apr '77	72	(162)	12	(164)	8	(93)	13	31	1	622	0	15	2	85	1
May '77	72	(162)	2	(164)	0	(93)	0	(32)	1	(458)	0	9	2	55	0
Jun '77	72	(162)	5	(164)	0	(93)	0	(32)	0	(458)	0	(19)	0	100	0
TOTAL	72	1942	179	1803	74	1021	96	287	29	3207	2	135	31	366	30

The numbers not in parentheses in this chart were derived by an actual count of patients seen within each clinic. This was accomplished by going through the records left in the clinic at the end of the day, by counting the patients on the sign in sheet, or by any method which was as accurate as possible for the given clinic. Due to the shortage of project personnel and time, and the number of clinics used, the counts were only done for a specified time (6 months) and then a mean figure was derived from the data. On the chart the numbers appearing in the parentheses are the mean figures derived from the actual count of the given clinic.

(e) However, it did show that a grass roots appeal to value strategy and/or a rational strategy (a potential user can be convinced) do not work. Of course, that is related to the time it takes people, in general, to change. Perhaps it's unrealistic to introduce change and a new concept without an authority strategy and expect everyone to be using the system properly within six months to a year.[88]

(f) It was also noted by observation that the utilization factors of the learning center were somewhat contingent upon the staffing patterns of the clinic, the type of health care facility, and the commander's prerogative based on his perceived mission. For instance, if the type of health care facility is anologous to a health maintenance organization, the staffing would consist mainly of physicians, perhaps one nurse clinician, maybe a visiting dietician, and a small cadre of enlisted non-professional personnel. Surely, their utilization of a learning center might be much more than a health care facility that is analogous to a community hospital or medical center where the emphasis is on training programs for professional personnel. For example, in training programs professionals strive and compete to do functions (such as patient education) that they wouldn't ordinarily do once their training or residency program was completed.

(g) Additionally, approximately 20 years ago the movement toward "comprehensive" care was started. Meanwhile, there was a population and technological explosion which partially contributed to the rising health care costs. The outcome was that a comprehensive approach to patient care took more people to do the same job with quality care going to a few at the expense of the many who did not receive that quality care. And unless some facets of health care are engineered to do a more efficient job for most health care consumers with less cost the health care delivery system is going to be in even deeper trouble.

(h) Other factors bearing on the utilization were the verbally expressed attitudes of the professional users. Some of the reasons given by physicians were: "My patients tell me they don't want to come," "I don't want to pressure my patients to go through the program," "I haven't the time to persuade my patients to attend," "I just keep forgetting about PACOMED," "Most of my patients don't need the program because they have had their problem for years, and it's satisfactorily controlled with medication," "I misplaced my referral forms."

(i) Some physicians did not want to give up their teaching function regardless of whether they had the time to give patient education or not.[89]

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[88] Maguire, L.M., Observations and Analysis of the Literature On Change, Research for Better Schools, Inc., Philadelphia, PA, June 1970, 19-24.

[89] Bernheimer, E., Experiences Implementing Patient Education In An Out-Patient Clinic, St. Mary's Hospital and Medical Center, San Francisco, CA, September 1975, 33-35.

(j) In addition to the physicians, the nurse clinicians, dieticians, and physical therapist felt PACOMED was encroaching on their territory. It really didn't matter to them whether they had the time or not, or what the quality and outcome of their product was, the issue to them was that, right or wrong, it is my function and I don't want anyone else involved even if they can do the job better at less cost. One nurse clinician responded "nurses as a group have fought too long and too hard to have control over patient education and we are not about to give it up to anyone."

(k) Although all health workers are "assumed" to be patient educators, their professional preparation often has not included the skills required to assess educational needs and to devise interventions appropriate to the learning needs of patients with different health conditions.[90,91]

(l) Most professionals didn't seem to resist the use of media and technology for patient education. This may be because health professionals are accustomed to dealing with sophisticated technology in all aspects of their work. But, more often than not, after their staff orientation, they wanted the media to show in their individual office or clinic rather than refer their patient to the learning center. In fact, after the staff development orientation, noted was a rally of satellite patient education programs being started by both physicians and nurses within the hospital. Since, many have fallen by the wayside because of lack of coordination and follow-up.

(m) Some physicians, nurses, and dieticians objected to the professional content expert, even though in all instances it was a colleague or group of colleagues. Individual professional governance pertaining to curriculum development can not be allowed. Without general application of materials, the costs of production, distribution, and management would be prohibitive.[92]

(n) Even though all professionals initially responded to the systematic assessment and were therefore involved in the selection of topics, many changed their minds, and perhaps felt one way and responded another. For instance, the pediatricians thought PACOMED should address childhood diseases rather than normal child growth and development. However, their response to the initial assessment was just the opposite. In fact, during the twelve months of operation the pediatric clinic referred only two patients.

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[90] Runge-Roosen Ursula, Planning Health Education In Health Maintenance Organizations, U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, Bureau of Health Education, Atlanta, Georgia, 1976, 7-22.

[91] Patient Education Workshop: Summary Report, U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, Bureau of Health Education, Atlanta, Georgia, 1976, 6.

[92] Meierhenry, W.C., "Role of Media In the Future of Higher Education," The Journal of Biocommunications, March 1977, 4 (1): 2-6.

(o) The larger issue was that there was a lack of confidence in health education as an effective and reliable discipline. Even among health care sophisticates who recognize the limits of therapeutic medicine and the crucial role of individual behavior and life style in the etiology of disease and disability, there is widespread scepticism as to the ability of health education to make any real difference.[93]

(p) If this prototype is going to be used by the AMEDD, program implementation will have to be approached somewhat differently than the decentralized method. In the one year that the learning center was in operation there were two commanders, three chiefs of Professional Service and two chiefs of Nursing Service. With each change it was necessary to start all over in "selling" the concept in order to solicit command support. And with each change it seemed more difficult to do. As the health educator expressed it, "A full grown tree is appreciated more when one watches it grow from a seedling."

(q) In order for a learning system such as this to be both cost effective and beneficial to all patients who have a need and a right to patient education there is going to have to be a built-in continuity factor,perhaps,at a higher echelon, a more centralized approach, to insure proper utilization of the resource. See Appendix D , page 161, Comparison of Clinic Patient Load, Professional Cost to Give Patient Education and PACOMED Cost, Appendix E , page 167, Comparison of Clinic Patient Load, Professional Estimate of Patient Education Time Cost and PACOMED Cost. The patient education follow-up times cost were not included in this data.

(r) Program development, at best, will be difficult for the AMEDD because of its transient military professional staff.

(s) Currently, what is lacking is a control and coordinating body at a higher level (to include staff development, methodology, validation, and clearinghouse components) to orchestrate and extend the scope of the existing resources and give guidance in the areas of both consumer health and information tailored to the AMEDD's needs.

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[93] Health Promotion and Consumer Health Education, A Task Force Report sponsored by The John E. Fogarty International Center For Advanced Study in the Health Sciences National Institutes of Health and the American College of Preventive Medicine, Prodist, New York, 1976.

b. Self Referral.

(1) This phase of the developmental portion of the study, Jan 1977 to Jul 1977, was introduced to observe how the learning center would function without any intervening authority structure to act as a retardant to the patient education concept, thereby giving all potential health consumers the opportunity to receive any or all of the health education being offered. The target group was all health consumers eligible to receive medical care at DeWitt Army Hospital. This included the active duty soldiers and their dependents, retirees and their dependents.

(a) Procedures.

1 The plan of action was to allow the maximum exposure of the concept to all those who were eligible.

2 The Commanding General and his staff officers received a briefing on the self referral concept with the MEDDAC Commander in attendance.

3 The Engineer Brigade Commander and Battalion Commanders received a briefing on the self referral concept as well as the Women's Army Corps Advisor to all female personnel.

4 In addition, there was coordination with the Post Information Officer, bi-monthly advertisements in the Post Daily Bulletin, and monthly advertisements in the post newspaper, The Castle.

5 Flyers to advertise the concept were distributed in all areas of DeWitt Army Hospital for four months, to include: outpatient facilities, waiting areas, patient information table in the main lobby of the hospital, and the patient assistance office. See Figure 1, page 47, Activity Flow Chart In Relation to Number of Self Referrals and Appendix F, page 175, Examples of Types of Printed Advertisements.

(2) Findings and Related Discussions.

(a) See Figure 2, page 48, Comparison of Staff Referrals With Self Referrals. Considering the fact that six months was not sufficient time to properly advertise the self referral system let alone evaluate it, the self referrals compare favorably to the number of referrals by the professional staff. However, the results were not remarkable. This was not surprising because the majority of the "well" public have not been educated to practice preventive medicine. More mass education and advertisement needs to be accomplished before the tide turns. This is starting to happen somewhat in the civilian sector as evidenced by the demand for active consumer participation in making policy for their health care systems.[94]

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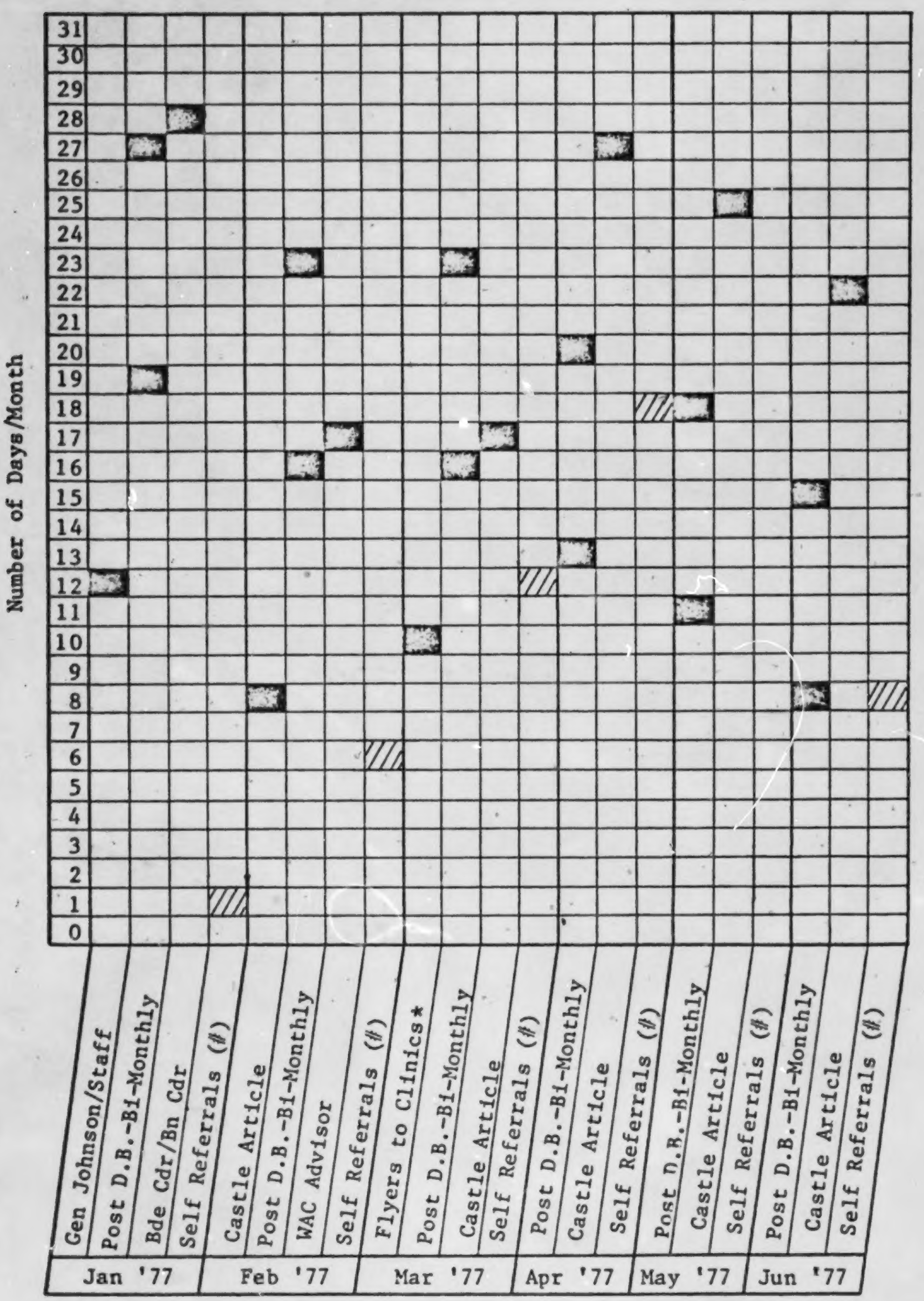
[94] Health Promotion and Consumer Health Education, A Task Force Report sponsored by The John E. Fogarty International Center for Advanced Study in the Health Sciences National Institutes of Health and The American College of Preventive Medicine, Prodist, New York, 1976, 17.

FIGURE 1

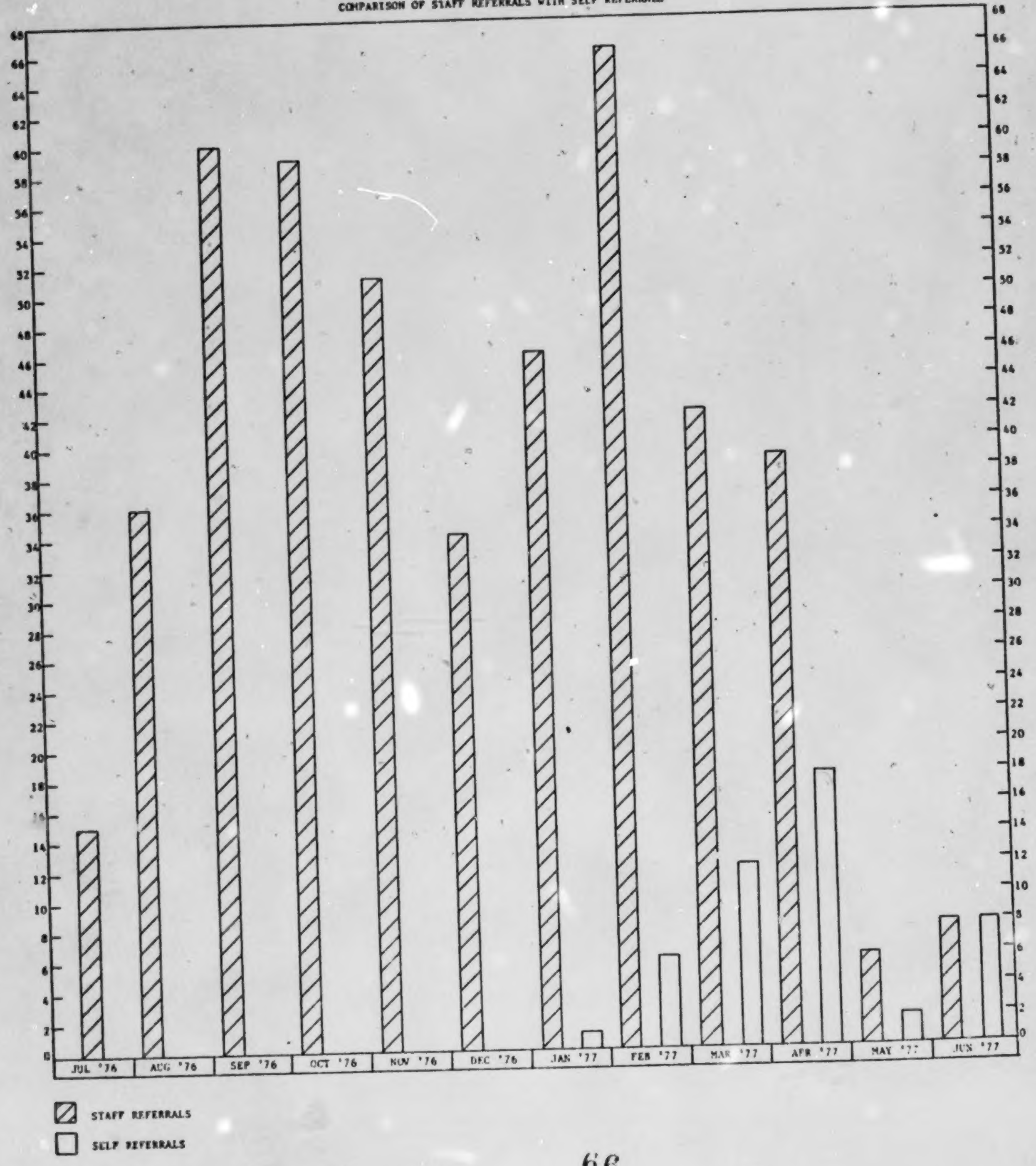
ACTIVITY FLOW CHART IN RELATION TO NUMBER OF SELF REFERRALS



*Flyers were maintained in the clinics for four months of the self referral phase.

FIGURE 2

COMPARISON OF STAFF REFERRALS WITH SELF REFERRALS



(b) In the AMEDD, giving additional benefits is not enough; health consumers need stronger motivators. For example, in the civilian sector there are built in economic motivators. If you successfully complete a health education program you get a 10 percent rebate on your insurance policy.[95] Other health programs require that you attend sessions on how to utilize the health care system and self-care for common ailments not usually requiring a physician's assistance as a prerequisite to enrollment.[96] Another example, is strong persuasion to attend a series of preventive medicine classes based on the health hazard appraisal after completion of a physical examination.[97]

(c) The application of the concepts of management theory to patient health education is not simple.[98] There are some differences in the ground rules; for instance, currently there is no true profit-making motive involved in consumer health education. The fact that there is no visible profit might be interpreted to mean it does not hold value for either the patient, physician, or most other health workers.

(d) Other problem areas and signs of resistance that occured during this phase were mainly logistic.

(e) The main problem in relation to the active duty soldier was the location of the learning center. Many company grade officers feared that the young active duty soldier would visit the learning center to avoid details. Consequently, the Brigade Commander made it mandatory that all active duty soldiers would have to schedule an appointment for health education through their orderly rooms. Because of this the PACOMED project received very few active duty soldiers for preventive education. Of course, this should not be, the active duty soldier is the AMEDD's main reason for being. Perhaps a learning center located adjacent to the troop barracks and dispensary is one answer. The other would be to provide preventive patient education to the active duty soldier via his unit training system. For example, an interface with the TEC program utilizing the Beseler system. Currently, the Army has 33,000 units in the field.

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[95] Ashley, M., Appendix P, "Financial Incentives as an Aid to Health Education," Health Promotion and Consumer Health Education, A Task Force Report Sponsored by the John E. Fogarty International Center for Advanced Study in the Health Sciences National Institutes of Health and the American College of Preventive Medicine, Prodist, New York, 1976.

[96] Sehnert, K.W., Course Guide for the Activated Patient: A Consumer-Oriented Program on Preventive Medicine and Self-Help Medicine, A Mitre Corporation Working Paper, Washington, D.C., September 1973.

[97] Geller, H., Health Hazard Appraisal, Methodist Hospital of Indiana, Indianapolis, Indiana, 1973.

[98] Kaufman, N. et al., Human Dimensions of School Improvement, Research for Better Schools, Inc., Philadelphia, PA, 1975, 110-111, 150.

(f) The other logistic problem was the fact that the PACOMED staff was attached and not assigned to DeWitt Army Hospital or to Ft Belvoir, VA. Consequently, the only base of support was the staff's salespersonship. At times a little authority or power wouldn't have hurt. Consequently, non-professionals of a lesser status would exert their "power" by not cooperating with the health educator. For instance, refusing to hand out flyers or keeping the forms completely out of sight, even after daily encouragement from the health educator to display them. It appeared that they didn't want the service available to the patient consumers.

c. The Professional User's Response to the Systems Approach In A Prototype Patient Education Setting.

(1) Procedures.

(a) One of the questions of great interest when the patient learning center was developed was what the professional users response would be in relation to the systems approach (SA) in a prototype patient education setting and if the results of their responses were consistent with their referrals to the learning center.

(b) Two questionnaires were given to the professional users (meaning those that had staff development and were referring patients to the learning center), a Staff Response Form (SRF) and a Job Descriptive Index (JDI).[99-105] See Appendix G, page 181, for examples of the two questionnaires. The Job Descriptive Index was administered concurrently with the Staff Response Form. The reason was to provide a check in the reliability of the Staff Response Form and to ascertain if there was consistency in the findings of the two questionnaires.

(c) A list containing the name of every individual in each of the clinics to which the questionnaires were administered was given to the NCOIC of PACOMED. Two envelopes and two questionnaires for each individual on the list were provided; one envelope was blank, while the other had the individual's name on it and contained the Staff Response Form and the Job Descriptive Index. Individuals were instructed that when the questionnaires were completed, they were to seal them in the blank envelope and return them to the NCOIC. The NCOIC checked the individual's name off the list when the questionnaires were returned. The envelopes were collected and sent to Health Care Studies Division, Fort Sam Houston, Texas, where they were opened and the results tabulated.

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[99] Miller, D.C., Handbook of Research Design and Social Measurement (New York, McKay Co., Inc, 1969), 205-207.

[100] Carrell, M., "How To Measure Job Satisfaction," Training HRD, November 1976, 25-28.

[101] Carrell, M.R. and Elbert, N.F., "Some Personal and Organizational Determinants of Job Satisfaction of Postal Clerks," Academy of Management Journal, 1974, 17: 368-373.

[102] Johnson, G.H., "An Instrument for the Measurement of Job Satisfaction," Personal Psychology, 1955, 8: 27-37.

[103] Loche, E.A., "What is Job Satisfaction?" Organizational Behavior and Human Performance, 1969, 4: 309-336.

[104] Porter, L., "A Study of Perceived Need Satisfaction in Bottom and Middle Management Jobs," Journal of Applied Psychology, 1961, 45: 1-10.

[105] Smith, P.C., Kendall, L.M., and Hulin, C.L., The Measurement of Satisfaction in Work and Retirement (Chicago, Rand McNally, 1969).

(2) Findings and Related Discussions.

(a) Sixty-one packets were handed out and 47 were returned completed. A compliance rate of 77 percent. See Table 4, page 53 , Professional Compliance to Staff Response Form and Job Descriptive Index In Relation to Numbers Assigned and Those Who Received Staff Development. The table provides a numerical breakdown of the number of individuals responding.

(b) The distribution of the descriptive respondent data by age, marital status, time since graduation, years of service, pay grade, and section assigned follows. See Table 5, pages 54-55, Descriptive Respondent Data.

(c) Eighty-four percent of those responding were 35 years of age or younger, and 83 percent were married, 86 percent have graduated from college 10 years ago or less, with 66 percent having five years or less of service, with the majority of the physicians in the pay grade of 0/4 and the majority of registered nurses and registered dieticians in the pay grade of 0/3, with the greatest number of personnel assigned to the Family Practice Clinic, 43 percent.

(d) See Table 6, pages 56-62 , Staff Response to the PACOMED Program. The analysis of the S.R.F was as follows: the responses were highly positive in all the PACOMED program provided items, 1-16, except for items 4, improved coordination between doctors and nurses, reference patient education; 5, a decrease in patient visits; 6, an increase in patient compliance; 7, a decrease in broken appointments. For the items listed under causes of dissatification with the PACOMED program, 17-26, all responses were highly positive in that very little dissatisfaction was found, except for items 23, patient referral system is inefficient and 24, feedback about patient progress is unsatisfactory. The responses for an appropriate use of the learning laboratory technician, items 27-37, indicated that the professionals preferred that the technician stick to running the learning center. See response to item 28, the professionals would prefer to resolve their own patient education problems. Most of the professionals agreed with improvements resulting from the PACOMED program, items 38-51. However, items 38,39,42,44 and 50 were not strongly positive in comparison to the other items. All of the staff who responded to items 52-57, what the learning center should provide, were in strong agreement about a diversity of patient education topics; a central location for all patient education materials; a wide range of audio-visual options; a physically planned area for reading, listening, and viewing; a viewing room where health care workers or small groups could preview instructional materials; and flexible modes in order to provide bed patients with instruction.

TABLE 4

PROFESSIONAL COMPLIANCE TO STAFF RESPONSE FORM AND JOB DESCRIPTIVE INDEX IN RELATION TO NUMBERS ASSIGNED AND THOSE WHO RECEIVED STAFF DEVELOPMENT

SECTION	Total Number Assigned	Physicians	Registered Nurses Registered Dieticians	Total Number Staff Development	Physicians	Registered Nurses Registered Dieticians	Number Receiving S.R.F. and J.D.I.	Physicians	Registered Nurses Registered Dieticians	S.R.F. and J.D.I. Completion	Physicians	Registered Nurses Registered Dieticians
Family Practice	27	26	1	25	24	1	24	23	1	20	19	1
Internal Medicine	7	5	2	6	4	2	5	3	2	4	2	2
Surgical Service	6	6	0	6	6	0	5	5	0	3	3	0
OB/GYN	8	7	1	5	4	1	5	4	1	2	1	1
Pediatric Service	6	5	1	5	4	1	5	4	1	3	2	1
Orthopedic Service	5	5	0	4	4	0	4	4	0	4	4	0
Dieticians	3	0	3	3	0	3	3	0	3	2	0	2
Health Nurses	4	0	4	3	0	3	3	0	3	2	0	2
Head Nurses	11	0	11	8	0	8	6	0	6	6	0	6
Ch Prof Svc	1	1	0	1	1	0	1	1	0	1	1	0
TOTAL	78	55	23	66	47	19	61	44	17	47	32	15

TABLE 5

DESCRIPTIVE RESPONDENT DATA

# Responding	AGE	20-25	26-30	31-35	36-40	41-45	46-50	51 & up
	PERCENT	%	%	%	%	%	%	%
32	Physicians	0	44	35	6	9	6	0
15	RN's/RD's	46	40	7	0	0	7	0
47	Total	15	43	26	4	6	6	0

# Responding	MARITAL STATUS	MARRIED	WIDOWED	SINGLE	DIVORCED
	PERCENT	%	%	%	%
32	Physicians	97	0	3	0
15	RN's/RD's	53	0	40	7
47	Total	83	0	15	2

# Responding	TIME SINCE GRADUATION	0-5	6-10	11-15	16-20	21-25	26-30
	PERCENT	%	%	%	%	%	%
32	Physicians	60	22	9	6	3	0
15	RN's/RD's	80	13	0	0	0	7
47	Total	66	20	6	4	2	2

# Responding	YEARS OF SERVICE	0-5	6-10	11-15	16-20	21-25	26-30
	PERCENT	%	%	%	%	%	%
32	Physicians	69	16	6	9	0	0
15	RN's/RD's	60	33	0	7	0	0
47	Total	66	21	4	9	0	0

TABLE 5 cont

# Res-ponding	PAY GRADE	0-1	0-2	0-3	0-4	0-5	0-6
	PERCENT	%	%	%	%	%	%
32	Physicians	0	0	32	53	6	9
15	RN's/RD's	0	13	80	0	7	0
47	Total	0	4	48	36	6	6

# Res-ponding	SECTION ASSIGNED	FAMILY PRACTICE	I.M.C.	ORTHO	SURGERY	PEDIATRIC	OB/GYN
	PERCENT	%	%	%	%	%	%
32	Physicians	60	9	13	6	6	3
15	RN's/RD's	7	13	0	0	7	7
47	Total	43	11	9	4	6	4

cont'd	SECTION ASSIGNED	DIET THERAPY	H. & E.	CPS	DEPT OF NURSING
	PERCENT	%	%	%	%
	Physicians	0	0	3	0
	RN's/RD's	13	20	0	33
	Total	4	6	2	11

TABLE 6

STAFF RESPONSE TO THE PACOMED PROGRAM

THE PACOMED PROGRAM PROVIDED:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
1. the physician/nurse clinician with more time for direct patient care.	26	53	10	11	--
2. improvement in comprehensive patient care.	31	59	8	2	—
3. improved communications relative to patient care.	21	45	32	—	2
4. improved coordination between doctors and nurses, reference patient education.	8	43	28	21	--
5. a decrease in patient visits.	6	15	49	21	9
6. an increase in patient compliance.	4	49	41	6	—
7. a decrease in broken appointments.	4	13	68	15	—
8. more personnel for comprehensive patient care.	9	58	19	8	6

THE PACOMED PROGRAM PROVIDED:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
9. improvement in attitude of patients seen.	15	42	32	11	--
10. increased patient knowledge about illness or disease.	43	47	8	2	--
11. increased communications between health care provider and patient.	19	41	32	6	2
12. increased patient satisfaction.	15	62	19	4	—
13. feasible ways of delivering patient education.	55	39	4	—	2
14. a resource for the health care providers in fulfilling their patient education responsibilities.	39	55	4	—	2
15. the physician/nurse clinician with accountability in the patient education area.	12	41	37	8	2
16. a willingness on the part of the patient to be a more effective self care agent.	11	50	28	9	2

TABLE 6 cont

CAUSES OF DISSATISFACTION WITH THE PACOMED PROGRAM ARE:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
17. interferes with the physician/nurse clinician—patient relationship	2	4	22	52	20
18. confuses the patient about what they should know regarding their illness or disease.	—	4	15	59	22
19. adds another cog in the already overburdened health care system.	—	17	13	43	27
20. uses too much of the physician/nurse clinician direct patient care time.	—	--	12	64	24
21. inhibits the physician/nurse clinician in their patient education role.	—	2	11	65	22
22. content of patient education material is not thorough enough.	2	14	15	56	13
23. patient referral system is inefficient.	—	26	20	43	11
24. feedback about patient progress is unsatisfactory.	8	20	24	46	2
25. most medical treatment facilities can't provide the space for a patient learning center.	—	4	37	35	24
26. isn't important enough to have personnel assigned in that function.	—	6	16	28	50

TABLE 6 cont

AN APPROPRIATE USE OF THE LEARNING LABORATORY TECHNICIAN IS:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
27. coordinating Learning Center/clinic referrals.	13	63	22	2	—
28. resolving patient education problems.	9	54	24	11	2
29. act as a consultant on the availability of audio visual modes for various patient education topics.	21	70	9	—	—
30. service the in-patients as well as the ambulatory patients.	30	61	9	—	—
31. collaborate and coordinate with the Health and Environment Section, and community resources.	17	66	17	—	—
32. prepare simple audio visual materials for use.	17	73	7	4	—
33. assemble collections for health care personnel in the hospital and ambulatory area.	15	58	25	2	—
34. prepare recordings, slides, and transparencies if needed.	19	63	9	9	—
35. handle the audio visual instructional equipment.	15	70	11	4	—

TABLE 6 cont

AN APPROPRIATE USE OF THE LEARNING LABORATORY TECHNICIAN IS:	(a) Stongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Stronly Disagree %
36. doing the many clerical activities related to the ordering, circulating, and use of materials and equipment.	9	59	24	4	4
37. counseling the patients.	11	47	9	22	11
IMPROVEMENTS RESULTING FROM THE PACOMED PROGRAM ARE:					
38. a written policy regarding patient education.	11	42	40	7	—
39. an accountable agent responsible for patient education.	15	40	23	20	2
40. a consultant service for patient education.	24	68	6	2	—
41. a center for patient education.	30	64	6	—	—
42. systematic assessments of patient or family health education.	9	51	27	14	—
43. individualized patient education programs.	13	70	8	9	—
44. consultant revision and up-dating of patient education programs.	9	50	37	2	2

TABLE 6 con.

IMPROVEMENTS RESULTING FROM THE PACOMED PROGRAM ARE:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
45. patient education presented in more flexible instructional modes.	21	56	17	4	2
46. better quality of patient education.	22	58	18	2	—
47. relieves the health care provider of repetition.	15	52	18	11	4
48. documentation in medical records of patient education activities.	21	52	27	—	—
49. formal assessment of patient and/or family educational outcomes in the cognitive, skill, and attitudinal areas.	11	67	20	2	—
50. improved coordination with Health and Environment Section and Community Resources.	7	37	56	—	—
51. follow-up evaluation of patient and family learning.	11	56	31	2	—
THE LEARNING CENTER SHOULD PROVIDE:					
52. a diversity of patient education topics.	50	46	2	—	2
53. a central location for all patient education materials.	44	50	2	4	—

TABLE 6 cont

THE LEARNING CENTER SHOULD PROVIDE:	(a) Strongly Agree %	(b) Agree %	(c) Neither Agree Nor Disagree %	(d) Disagree %	(e) Strongly Disagree %
54. a wide range of audio visual options, i.e., pictorialized media, P.I., television, etc.	41	48	9	2	—
55. a physically planned area for reading, listening, and viewing.	52	42	4	2	—
56. a viewing room where health care workers or small groups could preview instructional materials.	46	46	2	6	—
57. flexible modes in order to provide bed patients with instruction.	46	48.	4	2	—

TABLE 6 cont

(e) The correlation of age, years of active duty service, and rank with the J.D.I. indicated that in general, there were no significant differences between groups as a function of rank or position on the item-clusters. The predominant response was "agree only partly" to the effects resulting from the introduction of the PACOMED project. These findings were consistent with those of the S.R.F. For data pertaining to J.D.I. in relation to procedures, frequency of responses broken down by position and by rank, reliabilities of the satisfaction item clusters and correlation coefficients refer to Appendix H, page 199, Analysis of Data Pertaining to the Job Descriptive Index.

(f) The findings indicated that there wasn't any strong resistance on the part of the professionals toward PACOMED, but that they were reluctant to accept some features of the concept, especially in areas concerning professional roles. These attitudes could be an extension of their professional education. The entire medical culture is centered in acute illness and injury. From the time young men and women first consider going to medical or nursing school or joining any of the allied health professions, the focus of their interest is sickness, not health, and throughout the formative years of training the heroes and heroines of the culture are those whose highly developed skills and judgments go to the most critically ill and seriously injured. It is not always the money but the professional framework that turns the physician's attention always away from the lesser malady and toward the greater. Well people are a professional bore.[106] With the current change in the emphasis of the medical and allied health curriculum from episodic to chronic illness, preventive medicine, social medicine, and well people, so too will the change in attitude come not only in the importance of proper health education but the equally important issue of methods and means.

(g) The descriptive respondent data revealed that 43 percent of the respondents were family practice physicians, where currently there are no physician personnel shortages. That coupled with the residency program, where the emphasis is not on referring, but obtaining training, could have provided additional deterrents for the PACOMED program. Additionally, many physicians are wrongly duped into assuming responsibility for all the patient's problems. It builds up their ego when the patient tells them they are concerned physicians. There is a healthy side of "ego factors". The other side, which seldom is given overt acknowledgment isn't nice. Yet, the fact is that for many health professionals giving patients instruction provides a less healthy, but extremely powerful ego enhancement insofar as the traditional, face-to-face, direct method of instruction allows. Few are the other occasions in one's lifespace when he or she can exercise such power. And few are those health professionals who are going to give up any of the power to a talking box.[107] Of equal importance was the young group of physicians and others responding who still retain many of their civilian attitudes and values, and who will leave the service once their educational obligation is fulfilled. In civilian life the doctor loses money when he or she refers patients for other services.

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[106] McNerney, W.J., "The Missing Link In Health Services," Journal of Medical Education, January, 1975, 50: 11-23.

(h) In support of the accuracy of the findings the professionals were correct in pointing out some of the weaknesses of PACOMED. For instance, it took approximately six to nine months to test and develop a referral form that was efficient and that provided the proper feedback to the professional in reference to their patient's progress. This weakness was noted in the S.R.F. On the whole the results of the S.R.F. were fairly consistent with the professional referrals to the learning center. There was much ambivalence. Of course, part of the problem with the PACOMED deficiencies noted,was that there wasn't enough time to develop the program planning and management systems properly. At least another year to two years was needed before the results should have been subjected to measurement. However, an extension of the project was not forthcoming. Consequently, many of the measurements and observations were premature and perhaps didn't reflect the "true" picture. At best, this study component only gives a hint of the direction the various features may have taken.

d. Accountability and Monitoring for Eight Learning Systems.

(1) Procedures.

(a) Presented are the data from the ongoing monitoring of the eight learning systems (hypertension, diabetes, weight control, breast self examination, low back pain, child growth and development, family planning, and vaginitis). The data include the following patient measurements: (1) personal characteristics, (2) historical features of illness, (3) if had patient education, time since and provided by whom, (4) measures of knowledge, (5) measures of compliance behavior, (6) and measures of opinion pertaining to the systems approach learning process.

(b) The data presented are descriptive, anecdotal, and suggestive. The time given to complete this phase of the study did not allow for more scientifically supported judgment as was given in A Comparative Evaluation of the Traditional Versus A Systems Approach for Hypertension Patient Education, HCSD, AHS, FSHTX, Final Report, August 1977.[108]

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[107] Berkman, D., "Instructional Television: The Medium Whose Future Has Passed," Educational Technology, May 1976, 39-44.

[108] Kucha, D.H., A Comparative Evaluation of the Traditional Versus A Systems Approach for Hypertension Patient Education, HCSD, AHS, FSHTX, Final Report, August 1977.

(c) The patients for this portion of the study came from professional and self referrals. See Section 7, page 40 , Program Development.

(d) Unfortunately, adequate time was not available for the completion of this portion of the study. Only a small percentage of the patient referrals could return for follow-up visits and reinforcement because of insufficient time. For example, a patient who was seen initially in March could not be scheduled to return for a six month follow-up because the learning center ceased to operate in August.

(e) Rather than be overly repetitious, the learning objectives for each learning system, design of the instructional strategies, pre and post tests, etc. are presented system by system in Strategy for Instructional Systems Design Process and Formative Evaluation.[109]

(2) Findings and Related Discussions.

(a) Three learning systems (child growth and development, family planning and vaginitis) will not be presented because of the very low number of referrals, seven for child growth and development (three self referrals), three for family planning (all self referrals), and four for vaginitis (two self referrals).

(b) It was felt by the health educator of the PACOMED staff that the number of low referrals was caused primarily by the strong resistance of the professional staff of the two sections involved, Pediatric and OB/GYN clinics, not to utilize the learning center. For some reason, there was an almost unhealthy, hostile attitude aimed directly at the health educator for even existing. It is difficult to pinpoint why the staffs of these two particular clinics were so threatened. Perhaps, given another cast of characters and different leaders, the group dynamics would have been somewhat different and the scenario more positive. In fact, it took nine months to convince the chief of the OB/GYN clinic that his staff should be allowed to have the staff development component in order to be users of the system.

(c) Another interesting finding was that not one Pediatrician referred a parent for child growth and development. Both clinics had a nurse clinician that gave patient education almost exclusively; however, that did not adequately meet the need. For further elaboration on professional attitudes refer to Section 7, pages 41-45 , Program Development.

(d) Following is a breakdown and analysis of the five systems (hypertension, diabetes, weight control, breast self examination, and low back pain).

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[109] Kucha, D.H., Strategy for Instructional Systems Design Process and Formative Evaluation, Phase 2, Final Report, HCSD, AHS, FSHTX, June 1976.

(3) Hypertension.

(a) Clinic Patient Population for the Initial Encounter.

1 Findings.

a Fifty-six adult hypertensive patients received initial health education. Twenty-six returned for a one month follow-up, and seven returned for the six month follow-up.

b The majority of the patients not receiving the six month follow-up were not scheduled because of insufficient time due to the closing of the learning center August 1977. The few remaining did not return because of lack of interest.

c The breakdown of the 56 who had the pre and post-test series was as follows (See Table 7, page 72 , Demographic and Socioeconomic Characteristics of Hypertensive Patients: Initial Encounter). Active duty comprised 15 percent of the population, 56 percent were dependents and the remaining 29 percent were retirees. Males comprised 41 percent of the population and females 59 percent. Eighty-two percent of the group were between 40-69 years of age. Ninety-four percent were married. The educational level was high, the majority of the patients had a high school to baccalaureate degree. The two main occupation groups were housewife, 38 percent, and administrative, 28 percent.

d (See Table 8, page 74 , Historical Features of Hypertensive Patient Illness and Education Provided: Initial Encounter.) The time since diagnosed was 32 percent, less than 3 months and 39 percent, more than 2 years. The health care provider for 82 percent was a physician, 18 percent a nurse clinician. Forty-six percent had prior instruction, 54 percent did not have instruction of any kind. Of the 46 percent who had instruction, 30 percent had the instruction less than 3 months and 46 percent more than 2 years. Instruotion was provided by a physician for 62 percent of the patients who had instruction and 38 percent by a nurse clinician.

2 Discussion.

a The clinic patient population presented are descriptive statistics and require little explanation. It should be pointed out that the population described cannot be interpreted to represent the "true" patient consumer categories. Much would be dependent upon the mission of the Army Post and the geographical location. The same was also true for the historical features. Much of what type of professional provided what service was dependent upon utilization factors such as staffing patterns of the clinics, the type of health care facility, the commander's prerogative (based on his perceived mission) and patient priorities.

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b (Refer to Table 8, page 74 , Historical Features of Hypertensive Patient Illness and Education Provided: Initial Encounter.) Note that 82 percent of the patients received their care from a physician, 54 percent never had patient education and of the patient education that was given, 62 percent received the education from a physician. Several inferences can be made. First, over half of the patients never received instruction and 68 percent were diagnosed four months to more than two years ago. Second, even if nurse clinicians were providing education to some patients, it was not adequate to fill the need. Third, if physicians are indeed spending time to give basic instructions to patients, is this the best utilization of their valuable professional time? And at what cost to the taxpayer?[110,111]

(b) Patient Comprehension for the Initial Encounter.

1 Findings.

a Prior to the educational intervention all patients completed a multiple-choice questionnaire (pre-test) to determine their knowledge and skills in reference to the following learning objectives (the objectives were identified by a physician consultant as feasible achievements for all hypertensive patients):

GENERAL INFORMATION OBJECTIVES

Upon completion of this program the patient will be able to:

- Define blood pressure.
- Define systolic pressure and diastolic pressure.
- Define hypertension and give some indication of the range of blood pressure in which it falls.
- Define borderline hypertension and indicate the pressure range in which it falls.
- List several diseases hypertension is directly related to.
- Explain the implications of high blood pressure.
- Tell whether hypertension is controllable with medication.
- Tell what the hypertensive patient's attitude toward overweight should be.
- Tell what the hypertensive patient's attitude toward smoking should be.
- Tell what the goal of hypertension treatment is for the patient's health.
- Explain why the doctor may require regular visits as part of the patient's treatment.
- State what the hypertensive patient can look forward to with his disease under control.

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[110] Quinn, N. and Somers, A.R., "The Patient's Bill of Rights: A Significant Aspect of the Consumer Revolution," Nursing Outlook, 4 Apr 74, 22: 240-244.

[111] Goldman, B. and others, "Medical Cost Analysis of a Defined Population Using A Mixed Delivery System," Journal of the American College Health Association, 3 Feb 76, 24(3): 122-127.

LOW SODIUM DIET OBJECTIVES

Upon completion of this program the patient will be able to:

- Explain that sodium is a mineral found in salt.
- Explain why salt intake should be reduced.
- Explain in simple terms the effect of sodium on blood volume.
- Explain the function of the kidneys in relationship to blood volume.
- List at least two methods that may be used so the patient may eat the same food the family does.
- List several foods or spices in which high concentrations of sodium are found.
- Name several foods to avoid because they are heavily salted.
- Select from a sample menu foods that are low in sodium and can be eaten in restaurants and at food counters.
- Select sample menus for making lunch to eat at school or work.
- Describe the policy to follow on using salt substitutes.
- Describe several ways to cover up the lack of sodium in the diet by using spices and herbs.
- List several sources of recipes that may be used in preparing a low sodium diet.
- State the average number of sodium grams to eliminate from a simple low sodium diet.
- Describe the adjustments that may need to be made if the doctor recommends a specific level of sodium each day.

MEDICATION OBJECTIVES

Upon completion of this program the patient will be able to:

- Recognize from a complete list of medications, his/her medications and describe their use.
- Explain the importance of taking medication as prescribed.
- Recognize the eight rules a patient should follow when on medication.
- Explain the importance of and how to fill out a medication record sheet.
- Explain the importance of not taking another persons medications.
- Explain why medications should not be taken in front of children.
- Explain two different methods of taking medications to insure that the proper amount is taken at the designated time.
- Explain what effect alcoholic beverages can have on some medications.
- Tell what to do with medications no longer being used.
- Explain allergic reactions that may occur from prescribed medications.
- Tell how many days medication the patient should have on hand prior to having the prescription refilled.
- Tell why the patient should take his/her medication at the prescribed time.
- Explain why it is important to tell the physician about the medications the patient is taking that do not need a prescription.

b All patients in this group were pre and post tested. As shown in Table 9, page 75 , Percentage of Patients That Achieved the Criterion Level: Initial Encounter, the composite score revealed that none of the patients reached the criterion level of 80 percent on the pre-test. However, 88 percent reached the 80th percentile criterion level after receiving the educational intervention. The findings are broken down further into three categories; General Information, three percent reached the criterion level on the pre-test and 77 percent on the post-test; Low Sodium Diet, no patients reached criterion level on the pre-test and 84 percent attained 80 percent or higher on the post-test; Medications, 75 percent reached criterion level on the pre-test and 96 percent on the post-test.

2 Discussion.

a All patients not reaching the criterion level of 80 percent on the post-test were recycled until an 80 percent criterion level was reached. Only 12 percent had to be recycled in the General Information area.

b The high pre-test scores for Medications was not surprising. Most patients have had instruction on how to take medications since they first entered a health care system. The depressed pre-test scores for the other two areas, however, tells that 46 percent who did have prior instruction didn't retain the information.

(c) Patient Comprehension for the Initial Encounter and Six Month Assessment.

1 Findings.

See Table 10, page 76 , Percentage of Patients That Achieved the Criterion Level for the Six Month Assessment. The retention rate for the seven patients in the six month follow-up was high. For the composite score, 71 percent retained the criterion level of 80 percent or higher. There was only a 15 percent decrease in those that fell below the criterion level when compared to the initial encounter. See further breakdown by catagories, general information, low sodium diet and medications. Due to the small number of subjects, seven, a score distribution wasn't tabulated as was for the 56 subjects on the initial encounter.

2 Discussion.

The data support the findings in the final report of A Comparative Evaluation of the Traditional Versus A Systems Approach for Hypertensive Patient Education, pages 30-34.[112] That is, the type of educational design and methodology as well as patient interaction contribute to both comprehension and retention.

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[112] Kucha, D.H., A Comparative Evaluation of the Traditional Versus A Systems Approach for Hypertensive Patient Education, HCSD, AHS, FSHTX, Final Report, August 1977, 30-34.

(d) Patient Behavioral Baseline For Initial Encounter.

1 Findings.

See Table 11, page 77 , Patient Behavioral Baseline of Hypertensive Patients: Initial Encounter.

a Measurements were collected prior to the educational intervention. The data presented is for informational purposes only.

b Blood Pressure: No inferences were drawn because blood pressure is notorious for its variability from day to day and even from moment to moment. The values shown may be due solely to the effects of the medications or lack of it. Weight: These values mean nothing unless compared. Complies with Lab Tests: 100 percent. Takes Medications: 84 percent. Knows Drugs and Actions: 73 percent. Adheres to Low Sodium Diet: 75 percent. Four Cups of Coffee or Less Per Day: 79 percent. No Cigarettes: 61 percent. Experience Tension: 57 percent; 94% of those who experienced tension did not take medication for the tension. Have Exercise Program: 36 percent. Out of the 36 percent who had exercise programs, 40% exercise moderately, 30% vigorously, and 30% strenuously. Of those who exercised, 85% did so daily. Of all the baseline categories noted, the population appears to be most deficient in exercise.

2 Discussion.

It appears from the findings that patients are getting part of their educational message from pamphlets, magazines, national health programs (National Hypertension Program), and mass communications as well as from health professionals. What the data reveal, though, is that there are gaps in what behaviors are preceived to be most important by the patients and the priorities that are given them. For example, the large number of patients who smoke and do not exercise.

(e) Patient Behavioral Baselines For The Initial Encounter And One Month Assessment.

1 Findings.

a See Table 12, page 79 , Patient Behavioral Baselines for the Initial Encounter and One Month Assessment. The percentage of patients who had a diastolic of 90 mm Hg and below in the age 39 and under group increased 8 percent. The percentage of patients who the age 40-64 group increased 8 percent. The percentage of patients who were 140 mm Hg and below systolic increased from 38 percent to 62 percent. The average weight of the group dropped six pounds in one month. Additionally, the person with the highest weight, 265 lbs., lost 11 pounds (254 lbs.) in one month. There was no difference in complies with laboratory test; it was 100 percent as was the baseline. There was a three percent increase in the numbers of patients who now take their medication, and an increase of 15 percent who knew and understood the action of the drugs they were taking. Thirty percent more of the study population were adhering to a low sodium diet. There was a dramatic decrease in the percentage of patients who drank four cups of coffee or less from 81 percent to 4 percent. This data was collected at the time of the coffee shortage and soaring prices. The dramatic decline could have been related to the encouragement, in reference to the media, to cease or decrease coffee consumption, rather than to the educational intervention. There was a decrease of 30 percent of the population in the numbers of cigarettes smoked. Additionally, there was a decline of 31 percent in the patients who experienced tension. This could be attributed to the fact that 43 percent more of the patients had started to exercise daily. Although, of those exercising, the change in type and frequency was not that marked.

2 Discussion.

The problem appeared in being able to motivate the patients to attend and sustain their attendance throughout the patient education program and follow-up sessions. The data showed the effectiveness of the patient education program, once the motivation to attend the classes was there. This no doubt revealed a need for more investment in advertising about the merits of preventive and patient education.[113,114]

(f) Patient Behavioral Baselines For The Initial Encounter, One And Six Month Assessments.

Findings.

See Table 13, page 81, Patient Behavioral Baselines for the Initial Encounter, One and Six Month Assessment: Hypertension. The percentage of patients who had a diastolic of 90 mm Hg in the to age 39 group decreased by 14 percent. The other categories of diastolic and systolic remained unchanged from the one month. The average weight over a six month period declined only three pounds. There were no behavioral changes in complies with laboratory tests or adherence to medical program from the one month. In other words the behavior was sustained. There was a 14 percent increase in knowledge of drugs and actions from the one month. Adherence to low sodium diet increased another 14 percent. It could be that, in the modification of diet, it takes longer to change behavior because the patient gives up what they were taught to value. The other categories remained primarily the same, except 14 percent more started an exercise program. This category usually always shows a marked increase because the health education does not require that the patient give something up as in the case with diet modification or cessation of smoking. Exercise is easy to do, fun and it doesn't cost anything. The frequency of exercise increased 14 percent from the one month follow-up.

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[113] Marshall, T., "Kaiser Plan the Patients' View: What They Like and What They Don't Like," Modern Hospital, Feb 1971, 116: 86-87.

[114] Hulka, B., "Scale For the Measurement of Attitudes Toward Physicians and Primary Medical Care," Medical Care, Sept-Oct 1970, 8: 429-436.

TABLE 7

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF HYPERTENSIVE PATIENTS: INTITIAL ENCOUNTER

Demographic and Socioeconomic Variables	Patients N=56 %
RANK OF MILITARY	
Active Enlisted	
E-1 thru E-6	4
E-7 thru E-9	11
Active Officer	
Company Grade	0
Field Grade	0
Dependent	56
Retired Enlisted	
E-1 thru E-6	4
E-7 thru E-9	7
Retired Officer	
Company Grade	2
Field Grade	16
SEX	
Male	41
Female	59
AGE	
less than 30	5
30-39	20
40-49	30
50-59	32
60-69	13
70 and older	0

TABLE 7 cont

Demographic and Socioeconomic Variables	Patients N=56 %
MARITAL STATUS	
Married	94
Widowed	2
Single	4
Engaged	0
Divorced	0
Separated	0
EDUCATION COMPLETED	
Elementary (grades 1-6)	2
Junior High (grades 7-8)	4
High School (grades 9-12)	34
1-3 Years College	39
Baccalaureate	14
Master's Degree	5
Doctor's Degree	2
OCCUPATION	
Unemployed or Retired	14
Housewife	38
Administrative (office work)	28
Technical Specialist (mechanical)	4
Professional (non-medical)	7
Combat Related (line groups)	0
Student (full time)	0
Blue Collar Work (custodial)	0
Medical Professional (RN,MD,DDS)	2
Other	7

TABLE 8

HISTORICAL FEATURES OF HYPERTENSIVE PATIENT'S ILLNESS AND EDUCATION PROVIDED: INITIAL ENCOUNTER

Historical Features	Patients N=56 %
TIME SINCE DIAGNOSED	
Less Than 3 Months	32
4 to 6 Months	5
7 to 12 Months	9
1 to 2 Years	14
More Than 2 Years	39
HEALTH CARE PROVIDER	
Physician	82
Nurse Clinician	18
HAS HAD PRIOR INSTRUCTION	
Yes	46
No	54
	N=46 %
TIME OF PRIOR INSTRUCTION	
Less Than 3 Months	30
4 to 6 Months	8
7 to 12 Months	8
1 to 2 Years	8
More Than 2 Years	46
INSTRUCTION PROVIDED BY	
Physician	62
Nurse Clinician	38

TABLE 9

PERCENTAGE OF PATIENTS THAT ACHIEVED THE CRITERION LEVEL: INITIAL ENCOUNTER

N=56 -- %

					Criterion Level
GROUPS	0-29%	30-49%	50-69%	70-79%	80-100%
COMPOSITE SCORES					
Pre-Test	0	18	73	9	0
Post-Test	*0*	*0*	*5*	*7*	*88*
GENERAL INFORMATION					
Pre-Test	2	18	48	29	3
Post-Test	*0*	*0*	*11*	*12*	*77*
LOW SODIUM DIET					
Pre-Test	25	48	23	4	0
Post-Test	*0*	*2*	*5*	*9*	*84*
MEDICATIONS					
Pre-Test	2	0	16	7	75
Post-Test	*0*	*0*	*2*	*2*	*96*

TABLE 10

PERCENTAGE OF PATIENTS THAT ACHIEVED THE CRITERION LEVEL FOR THE SIX MONTH ASSESSMENT

N=7-%

GROUPS	INITIAL ENCOUNTER	SIX MONTH ASSESSMENT
COMPOSITE SCORES		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	14	29
Above 80% Post-Test	86	71
GENERAL INFORMATION		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	25	28
Above 80% Post-Test	75	72
LOW SODIUM DIET		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	29	57
Above 80% Post-Test	71	43
MEDICATIONS		
Below 80% Pre-Test	14	
Above 80% Pre-Test	86	
Below 80% Post-Test	0	14
Above 80% Post-Test	100	86

TABLE 11

PATIENT BEHAVIORAL BASELINES OF HYPERTENSIVE PATIENTS: INITIAL ENCOUNTER

OUTCOMES	INITIAL N=56-%
BLOOD PRESSURE	
Diastolic	
To age 39	
91 mm Hg and above	9
90 mm Hg and below	16
Age 40 to 64	
91 mm Hg and above	25
90 mm Hg and below	37
Age 65 and older	
101 mm Hg and above	4
100 mm Hg and below	9
Systolic	
All Ages	
141 mm Hg and above	55
140 mm Hg and below	45
WEIGHT (pounds)	
Mean	184
High	265
Low	130
COMPLIES WITH LAB TESTS	
Yes	100
No	0
TAKES MEDICATIONS	
Yes	84
No	5
N/A	11
Don't Know	0
KNOWS DRUGS AND ACTIONS	
Yes	73
No	27

TABLE 11 cont.

OUTCOMES	INITIAL N=56-%
ADHERES TO LOW SODIUM DIET	
Yes	75
No	25
N/A	0
NUMBER CUPS COFFEE/DAY	
4 or less	79
5 to 10	16
11 or more	5
NUMBER OF CIGARETTES/DAY	
None	61
1 to 10	7
11 to 20	18
21 or more	14
DO YOU USUALLY EXPERIENCE TENSION	
Yes	57
No	43
IF YES, DO YOU TAKE MEDICATION	
Yes	6
No	94
MAINTAINS EXERCISE PROGRAM	
Yes	36
No	64
TYPE OF PHYSICAL ACTIVITY	
Sedentary	0
Light	0
Moderate	40
Vigorous	30
Strenuous	30
FREQUENCY OF PHYSICAL ACTIVITY	
Daily	85
Twice Weekly	10
Weekly	5

TABLE 12

PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER AND ONE MONTH ASSESSMENT: HYPERTENSION

OUTCOMES	INITIAL N=26-%	ONE MONTH N=26-%
BLOOD PRESSURE		
Diastolic		
To age 39		
91 mm Hg and above	12	4
90 mm Hg and below	4	12
Age 40 to 64		
91 mm Hg and above	27	19
90 mm Hg and below	57	65
Age 65 and older		
101 mm Hg and above	0	0
100 mm Hg and below	0	0
Systolic		
All Ages		
141 mm Hg and above	62	38
140 mm Hg and below	38	62
WEIGHT (pounds)		
Mean	194	188
High	265	254
Low	121	121
COMPLIES WITH LAB TESTS		
Yes	100	100
No	0	0
TAKES MEDICATIONS		
Yes	85	88
No	4	4
N/A	11	8
Don't Know	0	0
KNOWS DRUGS AND ACTIONS		
Yes	69	84
No	31	16

TABLE 12 cont.

OUTCOMES	INITIAL N=26-%	ONE MONTH N=26-%
ADHERES TO LOW SODIUM DIET		
Yes	58	88
No	42	8
N/A	0	4
NUMBER CUPS COFFEE/DAY		
4 or less	81	4
5 to 10	19	46
11 or more	0	50
NUMBER OF CIGARETTES/DAY		
None	58	58
1 to 10	12	42
11 to 20	15	0
21 or more	15	0
DO YOU USUALLY EXPERIENCE TENSION		
Yes	50	
No	50	
IF YES, DO YOU TAKE MEDICATION		
Yes	8	
No	92	
NOTICED A DECREASE IN TENSION		
Yes		31
No		69
MAINTAINS EXERCISE PROGRAM		
Yes	38	81
No	62	19
TYPE OF PHYSICAL ACTIVITY		
Sedentary	0	0
Light	0	5
Moderate	30	38
Vigorous	40	48
Strenuous	30	9
FREQUENCY OF PHYSICAL ACTIVITY		
Daily	80	81
Twice Weekly	10	19
Weekly	10	0

TABLE 13

PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER, ONE AND SIX MONTH ASSESSMENTS: HYPERTENSION

OUTCOMES	INITIAL N=7-%	ONE MONTH N=7-%	SIX MONTH N=7-%
BLOOD PRESSURE			
Diastolic			
To age 39			
91 mm Hg and above	14	0	14
90 mm Hg and below	0	14	0
Age 40 to 64			
91 mm Hg and above	14	0	0
90 mm Hg and below	72	86	86
Age 65 and older			
101 mm Hg and above	0	0	0
100 mm Hg and below	0	0	0
Systolic			
All ages			
141 mm Hg and above	43	14	14
140 mm Hg and below	57	86	86
WEIGHT (pounds)			
Mean	186	184	183
High	260	253	254
Low	150	148	144
COMPLIES WITH LAB TESTS			
Yes	100	100	100
No	0	0	0
TAKES MEDICATIONS			
Yes	86	86	86
No	0	0	0
N/A	14	14	14
Don't Know	0	0	0
KNOWS DRUGS AND ACTIONS			
Yes	71	86	100
No	29	14	0

TABLE 13 cont.

OUTCOMES	INITIAL N=7-%	ONE MONTH N=7-%	SIX MONTH N=7-%
ADHERES TO LOW SODIUM DIET			
Yes	57	86	100
No	43	14	0
N/A	0	0	0
NUMBER CUPS COFFEE/DAY			
4 or less	71	100	100
5 to 10	29	0	0
11 or more	0	0	0
NUMBER OF CIGARETTES/DAY			
None	57	58	72
1 to 10	14	14	0
11 to 20	0	14	14
21 or more	29	14	14
DO YOU USUALLY EXPERIENCE TENSION			
Yes	71		
No	29		
IF YES, DO YOU TAKE MEDICATION			
Yes	20		
No	80		
NOTICED A DECREASE IN TENSION			
Yes		43	43
No		57	57
MAINTAINS EXERCISE PROGRAM			
Yes	43	86	100
No	57	14	0
TYPE OF PHYSICAL ACTIVITY			
Sedentary	0	0	0
Light	0	17	14
Moderate	0	17	14
Vigorous	67	66	72
Strenuous	33	0	0
FREQUENCY OF PHYSICAL ACTIVITY			
Daily	100	67	100
Twice Weekly	0	33	0
Weekly	0	0	0

100

(4) Diabetes.

(a) Clinic Patient Population for the Initial Encounter.

1 Findings.

a Eighty-eight diabetic patients received initial health education on general information about diabetes, 46 returned the following week for the second section, diabetic diet. Seventeen of the original 88 diabetic patients were on insulin and received the third section, insulin therapy. Fifteen of the 88 returned for a three month follow-up and eight returned for the six month follow-up.

b Most of the dropouts in the three month group were due to poorly motivated patients. In fact, the diabetic patients appeared to be the least interested in their illness compared to the patients in the other disease categories. This probably was due to the difficulty of the subject matter; there was so much to learn and so many behaviors (habits) to change in a relatively short time. It could very well be that the patients were overwhelmed in the first session and therefore were reluctant to return. Their initial reaction was to flee from the situation and deny they had the disease. This should be recognized about the nature of the behavior patterns of those who have the disease. Because of the aforementioned it will utimately cost more to educate diabetic patients than most other patients. More time will need to be spent in trying to encourage the patients to stick with the treatment program.[115,116,117] Of the patients who did not receive the six month follow-up, the major cause of no-shows was due to the closing of the learning center.

c See Table 14, page 84 , Demographic and Socioeconomic Characteristics of Diabetic Patients: Initial Encounter. The demographic and socioeconomic breakdown follows: 6 percent were active duty, 48 percent retirees and 46 percent dependents, 59 percent male and 41 percent female, 76 percent were between the ages of 41 to 71 and 85 percent were married, 78 percent had a high school education, 1 to 3 years of college or a baccalaureate degree. All occupational categories were represented except for combat related (line groups).

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[115] Etzwiler, D.D., "Who's Teaching the Diabetic?", Diabetes, Feb 67, 16: 111-117.

[116] Graber, A.L. et al, "Organization of a Diabetic Clinic at a Military Hospital: A Coordinated Team Approach," Military Medicine, Nov 68, 20: 900-903.

[117] Jernigan, A.K., "Diabetics Need to Know More About Diet," Journal of American Hospital Association, Nov 16, 1968, 42: 91-93.

TABLE 14

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF DIABETIC PATIENTS: INITIAL ENCOUNTER

Demographic and Socioeconomic Variables	Patients N=88 %
RANK OF MILITARY	
Active Enlisted	
E-1 thru E-6	3
E-7 thru E-9	0
Active Officer	
Company Grade	0
Field Grade	3
Dependent	46
Retired Enlisted	
E-1 thru E-6	8
E-7 thru E-9	20
Retired Officer	
Company Grade	3
Field Grade	17
SEX	
Male	59
Female	41
AGE	
less than 15	3
16-20	3
21-30	3
31-40	15
41-50	27
51-60	35
61-70	13
71 and older	1

TABLE 14 cont.

Demographic and Socioeconomic Variables	Patients N=88 %
MARITAL STATUS	
Married	85
Widowed	5
Single	7
Engaged	0
Divorced	2
Separated	1
EDUCATION COMPLETED	
Elementary (grades 1-6)	4
Junior High (grades 7-8)	9
High School (grades 9-12)	41
1-3 Years College	28
Baccalaureate	9
Master's Degree	9
Doctor's Degree	0
OCCUPATION	
Unemployed or Retired	15
Housewife	33
Administrative (office work)	10
Technical Specialist (mechanical)	7
Professional (non-medical)	10
Combat Related (line groups)	0
Student (full time)	4
Blue Collar Work (custodial)	6
Medical Professional (RN,MD, DDS)	2
Other	13

TABLE 15

HISTORICAL FEATURES OF DIABETIC PATIENT'S ILLNESS AND EDUCATION PROVIDED: INITIAL ENCOUNTER

Historical Features	Patients N=88 %
TIME SINCE DIAGNOSED	
Less Than 3 Months	27
4 to 6 Months	7
7 to 12 Months	4
1 to 2 Years	14
More Than 2 Years	48
HEALTH CARE PROVIDER	
Physician	72
Nurse Clinician	28
HAS HAD PRIOR INSTRUCTION	
Yes	65
No	35

	N=53 %
TIME OF PRIOR INSTRUCTION	
Less Than 3 Months	31
4 to 6 Months	9
7 to 12 Months	2
1 to 2 Years	12
More Than 2 Years	46
INSTRUCTION PROVIDED BY	
Physician	49
Nurse Clinician	51

d See Table 15, page 86, Historical Features of Diabetic Patient's Illness and Education Provided. The breakdown was as follows: 27 percent were diagnosed less than 3 months ago, 7 percent, 4 to 6 months, 4 percent, 7 to 12 months, 14 percent, 1 to 2 years and 48 percent more than 2 years ago. The health care provider for 72 percent was a physician and for the remaining 28 percent a nurse clinician. Sixty-five percent had prior instruction, 35 percent did not. Of those that had prior instruction, 31 percent had instruction less than 3 months ago, 9 percent, 4 to 6 months, 2 percent, 7 to 12 months, 12 percent, 1 to 2 years and 46 percent more than 2 years ago. Of the 65 percent who had instruction, 49 percent of the patients were given their instruction by a physician and 51 percent by a nurse clinician.

2 Discussion.

This population had more retirees than the other seven learning systems, 48 percent; and it was the only system that didn't have dependents as the highest represented group. This was also reflected in the sex breakdown, 59 percent of the population were male. All age groups were represented as well as all occupational groups. It was also interesting to note that only 65 percent of the population had had prior instruction and only 27 percent were diagnosed less than 3 months ago. This is a sad commentary on the state of the health care delivery system. This illness requires, perhaps, more than any other that the patient be an effective self care agent. It's important to note that a physician provided education to 49 percent of the patients that received instructions (53 patients out of the 88 diagnosed received instruction, 25 by a physician). The time involved to give quality baseline instruction for a diabetic patient requires anywhere from 2 to 5 hours, depending on the type of diet restriction and if they were on insulin. It's difficult to believe that a physician in the clinical area would have that amount of time to give to his or her patients. In addition in some MEDDACS and MEDCENS nurse clinicians were spending the majority of their time either giving diabetic or hypertension education. With the dearth of prepared physicians and nurse clinicians for the primary care areas this practice has to be questioned, especially when better methods are available that not only cost far less, and are more effective but save valuable professional time as well.

(b) Patient Comprehension for the Initial Encounter.

1 Findings.

a Prior to the educational intervention all patients completed a multiple-choice questionnaire (pre-test) to determine their knowledge and skills in reference to the following learning objectives (the objectives were identified by a physician consultant as feasible achievements for all diabetic patients):

DIABETES MELLITUS OBJECTIVES

Upon completion of this program the patient will be able to:

- Explain that diabetes is a condition that can be controlled.
- Explain that diabetes is a condition that must be taken care of everyday.

- Explain who gets diabetes.
- Define diabetes in simple terms.
- Explain the importance of diet.
- Name three (3) main types of food the body gets energy from.
- Define insulin and state its function (U-100).
- Define oral drugs and state function.
- Explain the importance of physical activity.
- Describe what steps to follow during an illness, infection, or severe emotional upset.
- Describe why urine testing is important to the diabetic.
- Explain urine testing for acetone.
- Explain diabetic acidosis.
- List the symptoms of insulin reaction.
- Describe what to do for an insulin reaction.
- Explain insulin reaction.

- Describe what to do for an insulin reaction.
- Explain the importance of having some form of medical identification.
- Describe why proper skin care and proper care of the feet and hands are important to the diabetic.
- List several foot conditions that should be brought to a physicians' attention.
- Explain the importance of a yearly eye examination.

DIABETIC DIET OBJECTIVES

Upon completion of this program the patient will be able to:

- Explain the types of food.
- Explain food exchange lists.
- Explain the importance of eating the exact amounts of food.
- Explain what to watch for when purchasing canned or packaged foods.
- Effectively plan menus using the exchange lists:
  a) Milk exchanges
  b) Vegetable exchanges
  c) Fruit exchanges
  d) Bread exchanges
  e) Meat exchanges
  f) Fat exchanges
  g) Foods allowed as desired
  h) Foods not on the exchange lists

SELF-INJECTION OF INSULIN OBJECTIVES

Upon completion of this program the patient will be able to:

- Describe the physicians order regarding his/her insulin dose including kind, strength, number of units, timing, and where indicated, the use of the sliding scale.

- Specify that changes in the insulin dose should be ordered by or guided by the physician.

- Explain that there are different kinds and strengths of insulin; that the shape of the bottle and color of the label help to identify the different kinds.
- Recognize that each insulin vial has a color coded cap to identify the strength and is stamped with an expiration date after which it should not be used.
- Recognize that insulin should be refrigerated but not frozen; that the vial in current use need not be refrigerated.
- Recognize that there are different kinds of insulin syringes and that the syringe must "match" the insulin, e.g., a U-40 syringe should be used with U-40 insulin - U-80 with the U-80 syringe - U-100 with the U-100 syringe.
- Recognize that the use of the dual-scale syringe is not recommended due to the great risk of grossly incorrect measurement.
- Identify the three parts of the syringe.
- Specify the angle of the needle when it is inserted and note how far it should be inserted.
- Explain the significance of small air bubbles in the barrel of the syringe.
- Recall whether a response is needed when there is a large air bubble in the barrel.
- Describe how to clean the top of the insulin bottle.
- Demonstrate how to fill the disposable syringe with the prescribed amount of insulin.
- Demonstrate how to withdraw the needle from the insulin bottle.
- Describe the steps in preparing the selected site for injection.
- Demonstrate how to pinch the skin at the injection site.
- Demonstrate the action of each hand for holding the syringe and pushing the plunger.
- Describe the recommended pattern for rotation of injection sites.
- Recognize the benefits of changing injection sites.
- Specify that at least one other person should know how to give insulin when necessary.

b Due to the length of the baseline diabetic instruction (2 consecutive weeks: first week, general information {2 hour session}, second week, diet information {2 hour session}, and if on insulin, insulin instruction, for a one hour session as soon as required) and difficulty of the subject matter there was a higher than usual dropout rate. Because of this it would be too confusing to list the baselines by composite score and/or by percentages. Instead the numbers of actual patients participating in each of the initial pre/post test series were given. See Table 16, page 92, Number of Diabetic Patients That Achieved the Criterion-Level: Initial Encounter.

c For general information pre-test, 5 patients reached the criterion level, 48 patients reached the criterion level for the post-test. Diabetic diet, 24 patients were at the criterion level or higher for the pre-test compared to 36 patients for the post-test. This high baseline score was due to prior diet instruction by a dietician. For those on insulin the pre-test indicated 7 at the criterion level and 17 after the educational intervention.

2 Discussion.

a It was interesting to note that most of the patients who initially made low scores on the general information section were the very patients who didn't return for the diabetic diet instruction.

b All patients who did not reach the criterion level had to be recycled. This system required more reinforcement than any other system because of the length and difficulty of the subject matter. During the instructional design phase there was some question about breaking the sessions down into smaller units. However, most of the patients used for the formative evaluation balked at the idea because of the additional travel time, time away from work, etc, that would be involved.

(c) Patient Comprehension for the Initial Encounter and Six Month Assessment.

See Table 17, page 93 , Percentage of Diabetic Patients That Achieved the Criterion Level for the Six Month Assessment. The composite retention score for the eight patients that participated in the six month follow-up wasn't that high. Fifty percent achieved the criterion level and 50 percent did not. In examining the individual sections it appeared that the diabetes information section had the lowest retention rate, while the diabetic diet and insulin therapy sections did not. It was probably related to the fact that what knowledge you don't use you lose. The patients practiced diet and insulin therapy daily.[118] Due to the small number of subjects, eight, a score distribution wasn't done as was for the initial encounter.

(d) Patient Behavioral Baseline for Initial Encounter.

1 Findings.

See Table 18, page 94 , Diabetic Patient Behavioral Baselines: Initial Encounter. In relation to examining urine for sugar and ketones the baselines weren't too impressive, 58 percent didn't check urine at all and 73 percent didn't check for ketones. Only 50 percent followed the food exchange list and 48 percent did not and 2 percent were not on diet therapy. Fifty-two percent of the population were not on medication and of the 48 percent on medication, 44 percent knew the drugs and action. Fifty-four percent maintained an exercise program, of those 48 patients, 25 percent exercised moderately, 67 percent vigorously and 6 percent strenuously. Eighty-three percent of the 48 patients exercised daily, 15 percent twice weekly and 12 percent weekly. Ninety percent of the population maintained proper foot care.

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[118] Ausubel, D.P., "A Subsumption Theory of Meaningful Learning and Retention," Journal of General Psychology, 1962, 66: 213-224.

2 Discussion.

Baselines were low in examining urine, perhaps this wasn't stressed by the patients' health care providers. Only 50 percent of 98 percent of the patients who were suppose to follow the exchange list did. It could be that the patients took the question literally and perhaps some of the 48 percent answered negatively because they may have had an idea of the amounts of foods (that came from practice) and felt they didn't need to use an exchange list. Or it could be an indication that they were becoming lax and not following orders, in which case they would need booster patient education. And only 54 percent maintained an exercise program. The data revealed that practically all the patients in the population could have benefited from some type of patient education whether they had prior instruction or not.

(e) Patient Behavioral Baselines for the Initial Encounter and Three Month Assessment.

See Table 19, page 96, Diabetic Patient Behavioral Baselines for the Initial Encounter and Three Month Assessment. The behavioral results of the 15 patients follows: 13 percent more had negative urine results compared to the baseline and more patients were checking their urine for both sugar and ketones. Four percent more were following the food exchange lists. The mean weight decreased by five pounds. Additionally, 14 percent more were taking their medications and the same number knew their drugs and action. Seven percent more maintained an exercise program, although more changed their type of physical activity from vigorous to moderate. Seven percent increased frequency to daily. No change in maintained adequate sleep or rest and 33 percent [illegible] patients maintained proper foot care.

(f) Patient Behavioral Baselines for the Initial Encounter, Three and Six Month Assessments.

1 Findings.

See Table 20, page 98, Diabetic Patient Behavioral Baselines for the Initial Encounter, Three and Six Month Assessments. The behavioral results of the eight patients follows: No significant change in testing urine for sugar and a decrease of 24 percent from the three month outcome for negative ketone. Seventeen percent more patients followed the food exchange list and a six pound loss in mean weight from the baseline and a three pound loss from the three month follow-up. Thirty-five percent more patients were taking their medications compared to the three month follow-up. All of those taking medications knew the drugs and actions. There was a 25 percent increase in patients who maintained an exercise program, type and frequency also changed in the desired direction. All patients now claimed they maintained adequate sleep, rest, and proper foot care.

TABLE 16

NUMBER OF DIABETIC PATIENTS THAT ACHIEVED THE CRITERION LEVEL: INITIAL ENCOUNTER

GROUPS	0-29%	30-49%	50-69%	70-79%	Criterion Level
					80-100%
GENERAL INFORMATION					
N=88					
Pre-Test	18	23	33	9	5
Post-Test	*0*	*8*	*13*	*19*	*48*
DIABETIC DIET					
N=46					
Pre-Test	1	1	12	8	24
Post-Test	*0*	*1*	*4*	*5*	*36*
INSULIN THERAPY					
N=17					
Pre-Test	1	1	4	4	7
Post-Test	*0*	*0*	*0*	*0*	*17*

TABLE 17

PERCENTAGE OF DIABETIC PATIENTS THAT ACHIEVED THE CRITERION LEVEL FOR THE SIX MONTH ASSESSMENT

N=8-%

GROUPS	INITIAL ENCOUNTER	SIX MONTH ASSESSMENT
COMPOSITE SCORES		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	37	50
Above 80% Post-Test	63	50
DIABETES INFORMATION		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	50	75
Above 80% Post-Test	50	25
DIABETIC DIET		
Below 80% Pre-Test	63	
Above 80% Pre-Test	37	
Below 80% Post-Test	50	25
Above 80% Post-Test	50	75
INSULIN THERAPY		
Below 80% Pre-Test	66	
Above 80% Pre-Test	34	
Below 80% Post-Test	0	25
Above 80% Post-Test	100	75

TABLE 18

DIABETIC PATIENT BEHAVIORAL BASELINES: INITIAL ENCOUNTER

OUTCOMES	INITIAL N=88-%
RESULTS OF URINE TEST (sugar)	
Negative	19
1 Plus	10
2 Plus	8
3 Plus	4
4 Plus	1
Not Done	58
RESULTS OF URINE TESTS (ketones)	
Negative	22
Trace	2
Moderate	2
Large	1
Not Done	73
FOLLOWS EXCHANGE LIST	
Yes	50
No	48
N/A	2
WEIGHT (pounds)	
Mean	180
High	290
Low	108
TAKES MEDICATION	
Yes	48
No	0
N/A	52
Don't Know	0
KNOWS DRUGS AND ACTIONS	
Yes	44
No	56

TABLE 18 cont.

OUTCOMES	INITIAL N=88-%
MAINTAINS EXERCISE PROGRAM	
Yes	54
No	46
TYPE OF PHYSICAL ACTIVITY	
Sedentary	2
Light	0
Moderate	25
Vigorous	67
Strenuous	6
FREQUENCY OF PHYSICAL ACTIVITY	
Daily	83
Twice Weekly	15
Weekly	12
ADEQUATE SLEEP AND REST	
Yes	87
No	13
MAINTAINS PROPER FOOT CARE	
Yes	90
No	10

TABLE 19

DIABETIC PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER AND THREE MONTH ASSESSMENT

OUTCOMES	INITIAL N=15-%	3 Month N=15-%
RESULTS OF URINE TEST (sugar)		
Negative	27	40
1 Plus	13	27
2 Plus	0	13
3 Plus	7	13
4 Plus	0	0
Not Done	53	7
RESULTS OF URINE TEST (ketones)		
Negative	13	26
Trace	0	7
Moderate	0	7
Large	0	0
Not Done	87	60
FOLLOWS EXCHANGE LIST		
Yes	83	87
No	17	13
N/A	0	0
WEIGHT (pounds)		
Mean	171	166
High	296	290
Low	122	121
TAKES MEDICATION		
Yes	53	67
No	0	0
N/A	47	33
Don't Know	0	0
KNOWS DRUGS AND ACTIONS		
Yes	53	67
No	47	33

TABLE 19 cont.

OUTCOMES	INITIAL N=15-%	3 Month N=15-%
MAINTAINS EXERCISE PROGRAM		
Yes	73	80
No	27	20
TYPE OF PHYSICAL ACTIVITY		
Sedentary	8	0
Light	0	9
Moderate	17	27
Vigorous	67	55
Strenuous	8	9
FREQUENCY OF PHYSICAL ACTIVITY		
Daily	75	82
Twice Weekly	25	18
Weekly	0	0
ADEQUATE SLEEP AND REST		
Yes	93	93
No	7	7
MAINTAINS PROPER FOOT CARE		
Yes	67	100
No	33	0

TABLE 20

DIABETIC PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER, THREE AND SIX MONTH ASSESSMENTS

OUTCOMES	INITIAL N=8-%	3 Month N=8-%	6 Month N=8-%
RESULTS OF URINE TEST (sugar)			
Negative	38	53	50
1 Plus	50	27	26
2 Plus	12	13	12
3 Plus	0	7	12
4 Plus	0	0	0
Not Done	0	0	0
RESULTS OF URINE TEST (ketones)			
Negative	25	87	63
Trace	0	0	12
Moderate	12	0	0
Large	0	0	0
Not Done	63	13	25
FOLLOWS EXCHANGE LIST			
Yes	88	83	100
No	12	17	0
N/A	0	0	0
WEIGHT (pounds)			
Mean	174	171	168
High	290	296	300
Low	121	122	125
TAKES MEDICATION			
Yes	75	53	88
No	0	0	
N/A	25	47	12
Don't Know	0	0	0
KNOWS DRUGS AND ACTIONS			
Yes	100	100	100
No	0	0	0

TABLE 20

OUTCOMES	INITIAL N=8-%	3 Month N=8-%	6 Month N=8-%
MAINTAINS EXERCISE PROGRAM			
Yes	73	75	100
No	27	25	0
TYPE OF PHYSICAL ACTIVITY			
Sedentary	12	0	0
Light	0	9	0
Moderate	25	27	33
Vigorous	63	55	50
Strenuous	0	9	17
FREQUENCY OF PHYSICAL ACTIVITY			
Daily	75	82	83
Twice Weekly	25	18	17
Weekly	0	0	0
ADEQUATE SLEEP AND REST			
Yes	83	93	100
No	17	7	0
MAINTAINS PROPER FOOT CARE			
Yes	63	100	100
No	37	0	0

2 Discussion.

It appeared from the data of the behavioral outcomes that it took patients at least six months to change all the outcomes in the desired direction. More time should be devoted to examining booster levels and long-term results of patient education.

(5) Weight Control.

(a) Clinic Patient Population for the Initial Encounter.

1 Findings.

a Seventy-one overweight patients received the initial health education on weight control. The initial session consisted of two, one hour appointments in two consecutive weeks. Ten returned for the three month follow-up and two for the six month follow-up.

b All of the overweight patients referred to the learning center were problem patients (lacked motivation) for either the physician, nurse clinician, or dietician. Most didn't want to come for an appointment to begin with. They were fat and happy and really didn't want to lose weight. Some follow-ups the health educator was unable to schedule because the learning center closed August 1977. However, the majority of the patients in this group were obese individuals who lacked motivation about their personal well being. These individuals lived to eat rather than ate to live.

c See Table 21, page 101, Demographic and Socioeconomic Characteristics of Weight Control Patients: Initial Encounter. The demographic and socioeconomic breakdown was as follows: Nine percent were active duty, four percent retirees, and 87 percent dependents. Eighty-nine percent were female and 11 percent male. All ages were represented except for 61 years and older. Eighty-seven percent were married and 13 percent were single. Twelve percent were in junior high school, which indicated a fair number of obese teenagers, 40 percent had a high school education, and 35 percent 1 to 3 years of college. The main occupation represented was housewife.

d Refer to Table 22, page 103, Historical Features of Weight Control Patients' Illness and Education Provided: Initial Encounter. Sixty-eight percent have been diagnosed more than two years ago, 15 percent, 1 to 2 years ago, 3 percent, 7 to 12 months, 8 percent, 4 to 6 months, and 6 percent, less than three months. The health care provider for the majority of the patients was a physician, 87 percent, and a nurse clinician for 13 percent. Forty-one percent of the patients never had weight control instructions, 59 percent had prior instruction. Forty-one percent received their instructions more than 2 years ago, 38 percent less than 3 months ago, the remaining 21 percent were somewhere in between. A dietician gave the instruction to 62 percent of those patients who had instruction, 24 percent were given instruction by a physician, and 14 percent by a nurse clinician. Thirty-nine percent had an overweight spouse, 25 percent overweight children, and 55 percent had parents who were overweight, either maternal, paternal, or both.

TABLE 21

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF WEIGHT CONTROL PATIENTS: INITIAL ENCOUNTER

Demographic and Socioeconomic Variables	Patients N=71 %
RANK OF MILITARY	
Active Enlisted	
E-1 thru E-6	6
E-7 thru E-9	1
Active Officer	
Company Grade	1
Field Grade	1
Dependent	87
Retired Enlisted	
E-1 thru E-6	0
E-7 thru E-9	1
Retired Officer	
Company Grade	0
Field Grade	3
SEX	
Male	11
Female	89
AGE	
less than 15	4
16-20	4
21-30	20
31-40	30
41-50	18
51-60	24
61 and older	0

TABLE 21 cont.

Demographic and Socioeconomic Variables	Patients N=71 %
MARITAL STATUS	
Married	87
Widowed	0
Single	13
Engaged	0
Divorced	0
Separated	0
EDUCATION COMPLETED	
Elementary (grades 1-6)	1
Junior High (grades 7-8)	12
High School (grades 9-12)	40
1-3 Years College	35
Baccalaureate	10
Master's Degree	1
Doctor's Degree	1
OCCUPATION	
Unemployed or Retired	1
Housewife	61
Administrative (office work)	13
Technical Specialist (mechanical)	3
Professional (non-medical)	4
Combat Related (line groups)	1
Student (full time)	7
Blue Collar (custodial)	0
Medical Professional (RN,MD,DDS)	0
Other	10

TABLE 22

HISTORICAL FEATURES OF WEIGHT CONTROL PATIENT'S ILLNESS AND EDUCATION PROVIDED: INITIAL ENCOUNTER

Historical Features	Patients N=71 %
TIME SINCE DIAGNOSED	
Less Than 3 Months	6
4 to 6 Months	8
7 to 12 Months	3
1 to 2 Years	15
More Than 2 Years	68
HEALTH CARE PROVIDER	
Physician	87
Nurse Clinician	13
HAS HAD PRIOR INSTRUCTION	
Yes	59
No	41
	N=43 %
TIME OF PRIOR INSTRUCTION	
Less Than 3 Months	38
4 to 6 Months	7
7 to 12 Months	0
1 to 2 Years	14
More Than 2 Years	41
INSTRUCTION PROVIDED BY	
Physician	24
Nurse Clinician	14
Dietician	62
	N=71 %
OVERWEIGHT SPOUSE	
Yes	39
No	61
OVERWEIGHT CHILDREN	
Yes	25
No	75
OVERWEIGHT PARENTS	
Maternal	35
Paternal	10
Both	10
None	45

2 Discussion.

The data clearly indicated that there was a need for a program such as PACOMED to save both valuable professional time and money. Further, the data revealed that the health care providers were not fully accountable in the area of patient education. It appeared that giving weight control instructions by health professionals (physicians, dieticians, nurse clinicians) to patients who had a familial history of obesity and were not motivated would not only be a professional bore, but counterproductive as well. Note that 87 percent of the obese dependent wives, 39 percent, claimed to have obese husbands.

(b) Patient Comprehension for the Initial Encounter.

1 Findings.

a Prior to the educational intervention all patients completed a multiple-choice questionnaire (pre-test) to determine their knowledge in reference to the following learning objectives (the objectives were identified by a physician and dietician consultant as feasible achievements for all weight control patients):

GENERAL INFORMATION OBJECTIVES

Upon completion of this program the patient will be able to:

- Explain how to treat their digestive system.
- Define overweight/obesity.
- List four main causes of overweight/obesity. For example: overeating, social pressures, lack of exercise, lack of will power.
- List five diseases directly related to obesity. For example: hypertension, diabetes mellitus, heart disease, postsurgical complications, hypoventilation, strain on the back and joints, toxemia, etc.
- Explain what the overweight/obese patient's attitude toward weight control should be.
- List the main reasons to avoid "fad/crash" diets.
- Explain the importance of self-motivation.
- List what his/her ideal weight should be.
- List the advantages the patient will have after gaining control of his/her weight.

PHYSICAL ACTIVITY/FOOD EXCHANGE

Upon completion of this program the patient will be able to:

- Explain the role of exercise in relation to weight reduction and control. For example: The benefit of balancing activity with caloric intake; The benefit of various types of exercise and how they relate to life style.
- Explain food exchange lists.
- Explain the types of food, i.e., protein, fat, fruits, etc.
- Explain the importance of eating the exact amounts and types of food recommended for daily consumption.
- Effectively plan menus using the exchange lists:
  a) Milk exchanges
  b) Vegetable exchanges
  c) Fruit exchanges
  d) Bread exchanges
  e) Meat exchanges
  f) Fat exchanges
  g) Foods allowed as desired
  h) Foods not on the exchange lists

b See Table 23, page 106, Percentage of Weight Control Patients That Achieved the Criterion Level: Initial Encounter. For the composite scores 8 percent reached the criterion level on the pretest and 92 percent did not. For the post-test, 89 percent reached the criterion level and 11 percent did not. See further breakdown of scores for general information and physical activity/food exchange.

2 Discussion.

The low baseline scores indicated that the previous instruction wasn't very informative and lasting, also a number of patients had never had instruction.

(c) Patient Comprehension for the Initial Encounter and Six Month Assessment.

See Table 24, page 107, Percentage of Weight Control Patients That Achieved the Criterion Level for the Six Month Assessment. One hundred percent of the patients were at the criterion level or above six months later. Since there were only two patients, no inferences can be drawn.

TABLE 23

PERCENTAGE OF WEIGHT CONTROL PATIENTS THAT ACHIEVED THE CRITERION LEVEL: INITIAL ENCOUNTER

N=71 -- %

					Criterion Level
GROUPS	0-29%	30-49%	50-69%	70-79%	80-100%
COMPOSITE SCORES					
Pre-Test	4	23	67	8	8
Post-Test	*0*	*0*	*3*	*8*	*89*
GENERAL INFORMATION					
Pre-Test	4	28	62	4	2
Post-Test	*0*	*0*	*3*	*8*	*89*
PHYSICAL ACTIVITY/ FOOD EXCHANGE					
Pre-Test	3	8	61	10	18
Post-Test	*0*	*0*	*3*	*5*	*92*

TABLE 24

PERCENTAGE OF WEIGHT CONTROL PATIENTS THAT ACHIEVED THE CRITERION LEVEL FOR THE SIX MONTH ASSESSMENT

N=2-%

GROUPS	INITIAL ENCOUNTER	SIX MONTH ASSESSMENT
COMPOSITE SCORES		
Below 80% Pre-Test	50	
Above 80% Pre-Test	50	
Below 80% Post-Test		
Above 80% Post-Test	100	100
GENERAL INFORMATION		
Below 80% Pre-Test	50	
Above 80% Pre-Test	50	
Below 80% Post-Test		
Above 80% Post-Test	100	100
PHYSICAL ACTIVITY/ FOOD EXCHANGE		
Below 80% Pre-Test	50	
Above 80% Pre-Test	50	
Below 80% Post-Test		
Above 80% Post-Test	100	100

(d) Patient Behavioral Baselines for the Initial Encounter.

a See Table 25, page 109, Weight Control Patient Behavioral Baselines for the Initial Encounter. Weights are not relevant until shown with comparative data. Fifty-four percent maintained an exercise program, 46 percent did not. Of the 54 percent that maintained an exercise program, 32 percent exercised moderately, 47 percent vigorously, and 18 percent strenuously. Sixty-six percent exercised daily, 26 percent twice weekly, and 8 percent weekly. Fifty-nine percent stated they understood their caloric limitations, 11 percent did not, and 30 percent felt they didn't have any limitations. Seven percent attended weight watchers, 18 percent did not,but felt a need, and 75 percent didn't feel a need for assistance in losing weight. Type of snacks consumed included: carbohydrates, 16 percent, protein, 3 percent, fat, 8 percent, fruit, 28 percent, milk, 4 percent, bread, 18 percent, and none, 23 percent. Sixty-six percent ate from 1 to 5 snacks per day other than their three meals, 8 percent from 6 to 10 snacks, 3 percent from 11 to 15 snacks and 23 percent had no snacks. Twelve percent were on medications for weight reduction, 50 percent of those on medication knew the drug and action while 50 percent did not. Eighty-eight percent didn't take medication for weight reduction and of the 12 percent on medications, 8 percent took their medications while 4 percent did not.

(e) Patient Behavioral Baselines and Outcomes for the Initial Encounter and Three Month Assessment.

a See Table 26, page 111, Weight Control Patient Behavioral Baselines and Behavioral Outcomes for the Initial Encounter and Three Month Assessment. The mean weight dropped 5 pounds for the 10 patients. Thirty percent more started an exercise program, however, 13 percent went from vigorous exercise to moderate, but 17 percent increased their frequency to daily. Twenty percent more claimed they understood they had caloric limitations and 40 percent were now attending weight watchers. Ten percent or one patient changed his snack from bread to protein. Twenty percent either decreased snacking or ceased altogether, and the 50 percent that formerly didn't know their drugs and action now did, and the compliance rate changed accordingly.

TABLE 25

WEIGHT CONTROL PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER

OUTCOMES	INITIAL N=71-%
ACTUAL WEIGHT (pounds)	
Mean	176
MAINTAINS EXERCISE PROGRAM	
Yes	54
No	46
TYPE OF PHYSICAL ACTIVITY	
Sedentary	0
Light	3
Moderate	32
Vigorous	47
Strenuous	18
FREQUENCY OF PHYSICAL ACTIVITY	
Daily	66
Twice Weekly	26
Weekly	8
UNDERSTANDS LIMITATIONS OF CALORIC INTAKE	
Yes	59
No	11
N/A	30
REGULAR ATTENDANCE AT WEIGHT WATCHERS, ETC.	
Yes	7
No	18
N/A	75
TYPE OF SNACKS CONSUMED	
Carbohydrates	16
Protein	3
Fat	8
Fruit	28
Milk	4
Bread	18
None	23

TABLE 25 cont.

OUTCOMES	INITIAL N=71-%
NUMBER OF SNACK TIMES/DAY	
1 to 5	66
6 to 10	8
11 to 15	3
More Than 15	0
None	23
TAKES MEDICATIONS	
Yes	8
No	4
N/A	88
KNOWS DRUGS AND ACTIONS	
Yes	50
No	50

TABLE 26

WEIGHT CONTROL PATIENT BEHAVIORAL BASELINES AND OUTCOMES FOR THE INITIAL ENCOUNTER AND THREE MONTH ASSESSMENT

OUTCOMES	INITIAL N=10-%	3 Month N=10-%
WEIGHT (pounds)		
Mean	175	170
MAINTAINS EXERCISE PROGRAM		
Yes	30	60
No	70	40
TYPE OF PHYSICAL ACTIVITY		
Sedentary	0	0
Light	0	0
Moderate	33	50
Vigorous	67	50
Strenuous	0	0
FREQUENCY OF PHYSICAL ACTIVITY		
Daily	33	50
Twice Weekly	34	33
Weekly	33	17
UNDERSTANDS LIMITATIONS OF CALORIC INTAKE		
Yes	80	100
No	0	0
N/A	20	0
REGULAR ATTENDANCE AT WEIGHT WATCHERS, ETC.		
Yes	0	40
No	10	0
N/A	90	60
TYPE OF SNACKS CONSUMED		
Carbohydrates	10	10
Protein	0	10
Fat	0	0
Fruit	20	20
Milk	10	10
Bread	20	10
None	40	40

TABLE 26 cont.

OUTCOMES	INITIAL N=10-%	3 Month N=10-%
NUMBER OF SNACK TIMES/DAY		
1 to 5	40	40
6 to 10	0	0
11 to 15	20	0
More Than 15	0	0
None	40	60
TAKES MEDICATIONS		
Yes	0	10
No	10	10
N/A	90	80
KNOWS DRUGS AND ACTIONS		
Yes	0	50
No	100	50

(f) Patient Behavioral Baselines and Outcomes for the Initial Encounter, Three and Six Month Assessment.

1 Findings.

See Table 27, page 114, Weight Control Patient Behavioral Baselines and Outcomes for the Initial Encounter, Three and Six Month Assessments. The comparison data for the two patients follows: Mean drop in weight 14 pounds, 50 percent increase in exercise, 50 percent increase from moderate to vigorous, and no change in frequency. No change in understands caloric limitations or attendance at Weight Watchers. One hundred percent change in type of snack consumed, no change in number of snacks per day. Neither patient was on medications.

2 Discussion.

This data suggested that in addition to saving professional time and cost of patient education the SA approach was effective in changing behavior in the desired direction. Because of the high dropout rate for the weight control patients, perhaps more resources should be allocated to motivate the patients to return for follow-up visits. This could easily be done by sending a post card or letter approximately one week before the follow-up appointment and a telephone call to remind the patients again of their appointments one day prior to the visit.[119,120,121]

(6) Breast Self Examination.

(a) Clinic Patient Population for the Initial Encounter.

1 Findings.

a Fifty-six patients received initial health education on Breast Self Examination. Only eight were able to return for the six month follow-up.

b The rate of non returnees was high because the learning center was closed August 1977, and there wasn't sufficient time for follow-ups.

c See Table 28, page 116, Demographic and Socioeconomic Characteristics of Breast Self Examination Patients: Initial Encounter. The population categories of the 56 patients follows: Two percent were active duty while 98 percent were dependents. All patients were female, 67 percent were between 30 to 50 years of age and 94 percent were married. Seventy-three percent had either a high school or 1 - 3 years of college educational level. The majority, 67 percent, were housewives.

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[119] Craddock, D., Obesity and Its Management (Edinburgh, E. and S. Livingston, LTD., 1969).

[120] Stare, J.F., "Comments on Obesity," World Wide Abstracts, 1963, 6: 8.

[121] Mayer, J., Overweight (Englewood Cliffs, Prentice-Hall, Inc., 1968), 28-30.

TABLE 27

WEIGHT CONTROL PATIENT BEHAVIORAL BASELINES AND OUTCOMES FOR THE INITIAL ENCOUNTER, THREE AND SIX MONTH ASSESSMENTS

OUTCOMES	INITIAL N=2--%	3 Month N=2--%	6 Month N=2--%
WEIGHT (Pounds)			
Mean	173	161	159
MAINTAINS EXERCISE PROGRAM			
Yes	50	100	100
No	50	0	0
TYPE OF PHYSICAL ACTIVITY			
Sedentary	0	0	0
Light	100	0	0
Moderate	0	100	50
Vigorous	0	0	50
Strenuous	0	0	0
FREQUENCY OF PHYSICAL ACTIVITY			
Daily	100	100	100
Twice Weekly	0	0	0
Weekly	0	0	0
UNDERSTANDS LIMITATIONS OF CALORIC INTAKE			
Yes	100	100	100
No	0	0	0
N/A	0	0	0
REGULAR ATTENDANCE AT WEIGHT WATCHERS, ETC.			
Yes	50	50	50
No	0	0	0
N/A	50	50	50
TYPE OF SNACKS CONSUMED			
Carbohydrates	50	0	0
Protein	0	0	0
Fat	0	50	0
Fruit	0	50	100
Milk	0	0	0
Bread	50	0	0
None	0	0	0

TABLE 27 cont.

OUTCOMES	INITIAL N=2--%	3 Month N=2--%	6 Month N=2--%
NUMBER OF SNACK TIMES/DAY			
1 to 5	100	100	100
6 to 10	0	0	0
11 to 15	0	0	0
More Than 15	0	0	0
None	0	0	0
TAKES MEDICATIONS			
Yes	0	0	0
No	0	0	0
N/A	100	100	100

KNOWS DRUGS AND ACTIONS

There were no data for this section because neither of the patients were taking medication.

TABLE 28

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF BREAST SELF EXAMINATION PATIENTS: INITIAL ENCOUNTER

Demographic and Socioeconomic Variables	Patients N=56 %
RANK OF MILITARY	
Active Enlisted	
E-1 thru E-6	2
E-7 thru E-9	0
Active Officer	
Company Grade	0
Field Grade	0
Dependent	98
Retired Enlisted	
E-1 thru E-6	0
E-7 thru E-9	0
Retire Officer	
Company Grade	0
Field Grade	0
SEX	
Male	0
Female	100
AGE	
less than 15	0
16 to 20	4
21 to 30	14
31 to 40	37
41 to 50	30
51 to 60	11
61 to 70	2
70 and older	2

TABLE 28 cont.

Demographic and Socioeconomic Variables	Patients N=56 %
MARITAL STATUS	
Married	94
Widowed	0
Single	4
Engaged	0
Divorced	0
Separated	2
EDUCATION COMPLETED	
Elementary (grades 1-6)	2
Junior High (grades 7-8)	10
High School (grades 9-12)	34
1-3 Years College	39
Baccalaureate	13
Master's Degree	2
Doctor's Degree	0
OCCUPATION	
Unemployed or Retired	2
Housewife	67
Administrative (office work)	14
Technical Specialist (mechanical)	4
Professional (non-medical)	2
Combat Related (line groups)	0
Student (full time)	2
Blue Collar (custodial)	2
Medical Professional (RN,MD,DDS)	0
Other	7

TABLE 29

HISTORICAL FEATURES OF BREAST SELF EXAMINATION PATIENTS AND EDUCATION PROVIDED: INTITAL ENCOUNTER

Historical Features	Patients N=56 %
HEALTH CARE PROVIDER	
Physician	98
Nurse Clinician	2
HAS HAD PRIOR INSTRUCTION	
Yes	46
No	54
TIME OF PRIOR INSTRUCTION	
Less Than 3 Months	38
4 to 6 Months	4
7 to 12 Months	4
1 to 2 Years	19
More Than 2 Years	35
INSTRUCTIONS PROVIDED BY	
Physician	85
Nurse Clinician	15
NUMBER OF CHILDREN	
1	14
2	36
3	27
4	11
5 or More	2
None	11
AGE WHEN FIRST CHILD WAS BORN	
15 to 20	8
21 to 25	68
26 to 30	16
31 to 35	6
36 to 40	2
40 and Above	0
AGE WHEN LAST CHILD WAS BORN	
15 to 20	9
21 to 25	24
26 to 30	30
31 to 35	22
36 to 40	13
41 and Above	2

TABLE 29 cont.

Historical Features	Patients N=56 %
DID YOU BREAST FEED	
Yes	44
No	56
HOW MANY CHILDREN	
1	41
2	41
3	10
4	4
5 or More	4
HOW LONG FOR EACH CHILD	
2 Weeks	4
1 Month	14
2 Months	9
3 Months	27
4 Months	14
5 Months or Longer	32
FAMILY HISTORY OF CANCER	
Yes	36
No	64
CANCER OF THE	
Colon	25
Breast	55
Uterus	10
Cervis	10
WHAT AGE AT MARRIAGE	
15 to 20	38
21 to 25	48
26 to 30	7
31 to 35	4
36 to 40	0
41 or Older	0
Not Married	4
PREVIOUS BREAST BIOPSIES	
Yes	100
No	0
DIAGNOSIS IF KNOWN	
Benign	32
Malignant	68

d See Table 29, page 118, Historical Features of Breast Self Examination Patients and Education Provided: Initial Encounter. The health care provider for 98 percent of the patients was a physician. Forty-six percent had prior instruction, 54 percent did not and of those 46 percent that did have instruction, 38 percent had instruction less than three months and 35 percent more than two years. Eighty-five percent of the instruction was given by a physician and 15 percent by a nurse clinician. Other historical features included: number of children, the majority had 2 or 3 children, 68 percent were between the ages of 21 to 25 when their first child was born, 76 percent were between the ages of 21 to 35 when their last child was born. Forty-four percent breast fed and 56 percent did not. Eighty-two percent only breast fed one or two of their children for a period ranging from two weeks to five months or longer. Thirty-six percent had a family history of cancer, 64 percent did not. Eighty-six percent were married between the ages of 15 to 25. All had previous breast biopsies and 68 percent were malignant and 32 percent benign.

2 Discussion.

The most glaring fact was that 54 percent had not had prior instruction. Of those referred, all had previous breast biopsies and 68 percent had a malignancy. The data certainly did indicate a need to save professional time as well as cost in this area. In addition the need for preventive patient education appeared to be great.

(b) Patient Comprehension for the Initial Encounter.

1 Prior to the educational intervention all patients completed a multiple-choice questionnaire (pre-test) and Betsi breast demonstration to determine their knowledge and skills in reference to the following learning objectives (the objectives were identified by a physician consultant as feasible achievements for all breast self examination patients):

BREAST SELF EXAMINATION OBJECTIVES

Upon completion of this program the patient will be able to:

- List the types of tissue in the breast, example: glandular, fibrous, and fat.
- Name the tissue which runs immediately under the breast skin.
- Describe the functions of Cooper's Ligaments.
- List two factors which determine the amount of fat tissue in the breast.
- State the function of the lymphatic system.
- Tell why the lymphatic system is significant in breast cancer patients.

- Define metastasis.
- Identify the breast as the most common site of cancer in women.
- List the expected cure rate when breast cancer is detected and treated in its early stages.
- Specify two things all women can do to help bring about a significant decline in the breast cancer death rate. Example: Professional and self examinination.
- Tell at what time during the menstrual cycle breasts should be examined.
- List changes in the breast to look for when doing breast self examination. Example: Dimpling, orange peel skin, discharge.
- Tell the reason for looking at the breasts with arms over the head and with hands squeezing the waist.
- Tell what the third part of the visual exam consists of, Example: Discharge from the nipple.
- Name two signs to look for in the third part of the breast self examination. Example: bleeding, other discharge, etc.
- Tell why to begin the examination when the skin is wet.
- Show how the fingers are held in relation to the breast to do correct breast self examination.
- Describe the correct technique for examining the breasts.
- Explain why a second examination is done in the prone position.
- Tell what should be done if a lump in the breast is found.
- With the aid of the Betsi Breast Teaching Model, the patient will demonstrate the following:
  1) Correct technique for breast self examination.
  2) Ability to detect breast lumps by finding four (4) lumps in the breast model.

2 See Table 30, page 122, Percentage of Breast Self Examination Patients That Achieved the Criterion Level: Initial Encounter. All patients were pre and post tested to include a Betsi breast demonstration. Two percent reached the 80 percent criterion level on the pre-test and 96 percent did not. Seventy percent failed the Betsi breast demonstration on the pre-test, 30 percent passed. For the post-test 77 percent reached the criterion level and 100 percent passed the Betsi breast demonstration.

3 Those patients not reaching the 80 percent criterion level were given additional instruction during their initial appointment and all reached the criterion level prior to leaving the learning center.

4 Again, notice the low baseline scores, even though 46 percent of the referrals had prior instruction. It appeared that the existing system was not providing adequate education, and it was lacking in both quality assurance and accountability.

TABLE 30

PERCENTAGE OF BREAST SELF EXAMINATION PATIENTS THAT ACHIEVED THE CRITERION LEVEL: INITIAL ENCOUNTER

GROUPS	0-29%	30-49%	50-69%	70-79%	80-100%
GENERAL INFORMATION					
Pre-Test	52	25	21	0	2
Post-Test	*0*	*0*	*2*	*21*	*77*

	PASS	FAIL
BETSI BREAST TEACHING MODEL		
Pre-Test	70	30
Post-Test	*100*	*0*

(c) Patient Comprehension for the Initial Encounter and Six Month Assessment.

1 Findings.

See Table 31, page 123, Percentage of Breast Self Examination Patients That Achieved the Criterion Level for the Six Month Assessment. Eighty-seven percent of the patients were at the criterion level or above six months later and 100 percent passed the Betsi breast demonstration.

2 Discussion.

Unfortunately, the number of subjects reported on for the six month assessment was small (N=8). Consequently the data were not subjected to statistical interpretation. The data reveal an exceptionally high retention rate when compared to the retention rates of other learning systems that have six month follow-ups in both the comprehensive and skill areas. What this suggested was that booster levels, and times of reinforcement were learning system dependent. In other words, different topic areas and learning objectives probably would require different time increments for optimum reinforcement in order to sustain desired outcomes.

TABLE 31

PERCENTAGE OF BREAST SELF EXAMINATION PATIENTS THAT ACHIEVED THE CRITERION LEVEL FOR THE SIX MONTH ASSESSMENT

N=8-%

GROUPS	INITIAL ENCOUNTER	SIX MONTH ASSESSMENT
GENERAL INFORMATION		
Below 80% Pre-Test	100	
Above 80% Pre-Test	0	
Below 80% Post-Test	38	13
Above 80% Post-Test	62	87
BETSI BREAST TEACHING MODEL		
Pass	100	100
Fail	0	0

(d) Patient Behavioral Baselines for the Initial Encounter.

See Table 32, page 124, Breast Self Examination Patient Behavioral Baselines for the Initial Encounter. The findings for the 56 women revealed that only 32 percent examined their breasts monthly, 68 percent did not. Seventy-nine percent did an incomplete examination, 21 percent a complete examination, 52 percent have detected a lump, 48 percent have not. Of the 52 percent who detected a lump, 86 percent were benign and 14 percent malignant.

(e) Patient Baselines and Behavioral Outcomes for the Six Month Assessment.

1 Findings.

See Table 33, page 125, Breast Self Examination Patient Baselines and Behavioral Outcomes for the Six Month Assessment. Sixty-two percent more women examined their breasts monthly after the educational intervention then they did prior to having the instruction. One hundred percent could perform a thorough examination. Previously 62 percent only could perform an incomplete examination and 38 percent couldn't perform one at all. Prior to being referred to the patient learning center 33 percent had benign lumps, 33 percent malignant lumps and 34 percent didn't know if they had any lumps. Six months later, 25 percent out of the 67 percent who didn't know if they had lumps (39 percent) or said they didn't have lumps (33 percent) discovered lumps. As of this writing

TABLE 32

BREAST SELF EXAMINATION PATIENT BEHAVIORAL BASELINES FOR THE INITIAL ENCOUNTER

OUTCOMES	INITIAL N=56-%
EXAMINES BREASTS MONTHLY	
Yes	32
No	68
THOROUGHNESS OF EXAMINATION	
Complete	21
Incomplete	79
DETECTION OF LUMP	
Yes	52
No	48
BENIGN OR MALIGNANT	
Benign	86
Malignant	14

none of the lumps had been biopsied, see N/A, 100 percent.

2 Discussion.

There appeared to be a great need for preventive patient education in this area. Certainly judging from the data, many lumps were going undetected. In fact, the education should be a routine part of the yearly GYN check-up. The PACOMED prototype can provide the service effectively at a very low cost, both in professional time saved and money, not to mention the ultimate savings in numbers of lives saved. With the growing numbers of women entering the Army this preventive education should be given a very high priority.

TABLE 33

BREAST SELF EXAMINATION PATIENT BASELINES AND BEHAVIORAL OUTCOMES FOR THE SIX MONTH ASSESSMENT

OUTCOMES	INITIAL N=8-%	SIX MONTH ASSESSMENT
EXAMINES BREASTS MONTHLY		
Yes	25	87
No	75	13
THOROUGHNESS OF EXAMINATION		
Complete	0	100
Incomplete	100	0
DETECTION OF LUMP		
Yes	33	25*
No	33	75
N/A	34	
BENIGN OR MALIGNANT		
Benign	33	
Malignant	33	
N/A	34	100*

*No biopsy of the detected lump was taken prior to the six month follow-up.

(7) Low Back Pain.

(a) Clinic Patient Population for the Initial Encounter.

1 Findings.

a Thirty-six patients with low back pain received the initial health education. Only five returned for the one month follow-up.

b The majority did not return because they claimed their back felt better. The other patients gave the following excuses: transportation problems, no time, wanted their appointment to coincide with physician appointment.

c See Table 34, page 127, Demographic and Socioeconomic Characteristics of Low Back Pain Patients: Initial Encounter. The demographic and socioeconomic breakdown of the thirty-six patients follows: 30 percent were active duty, 9 percent retirees, and 61 percent dependents. Twenty-eight percent were male and 72 percent female. Six percent were less than 20 years of age, 25 percent 21 to 30 years of age, 25 percent 31 to 40 years of age, 28 percent 41 to 50 years of age, and 16 percent 51 to 60 years of age. Eighty-three percent were married. The majority of the patients had an educational level of high school to baccalaureate degree, 92 percent. Occupations: 39 percent housewife, 25 percent administrative work, 11 percent technical specialist, 14 percent professional, 3 percent combat related, and 8 percent blue collar work.

d See Table 35, page 129, Historical Features of Low Back Pain Patients' Illness and Education Provided: Initial Encounter. The health care provider for all the patients was a physician. Seventy-two percent had prior instruction, and 28 percent did not. Forty-six percent of the patients had prior instruction less than 3 months ago, and 46 percent more than 2 years ago. Instructions were provided by a physician for 54 percent, nurse clinician for 4 percent, and physical therapist for 42 percent. Eighty-three percent had a history of back pain that started with trauma, 47 percent cited other causes.

2 Discussion.

a The clinic patient population represented a high percentage of active duty, 30 percent, and a much younger group than the hypertensive, diabetes, and weight control systems. Consequently, the occupational distribution was much more varied.

b Perhaps the low number of returnees for the one month follow-up was due to the high percentage of patients who had prior instruction, 72 percent. Additionally, 46 percent had their instruction less than 3 months ago before being referred to the learning center. The perceived need simply wasn't there. Note that a physician gave instruction to 54 percent of the patients.

TABLE 34

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF LOW BACK PAIN PATIENTS: INITIAL ENCOUNTER

Demographic and Socioeconomic Variables	Patients N=36 %
RANK OF MILITARY	
Active Enlisted	
E-1 thru E-6	16
E-7 thru E-9	8
Active Officer	
Company Grade	3
Field Grade	3
Dependent	61
Retired Enlisted	
E-1 thru E-6	3
E-7 thru E-9	3
Retired Officer	
Company Grade	3
Field Grade	0
SEX	
Male	28
Female	72
AGE	
less than 20	6
21 to 30	25
31 to 40	25
41 to 50	28
51 to 60	16
61 to 70	0

TABLE 34 cont.

Demographic and Socioeconomic Variables	Patients N=36 %
MARITAL STATUS	
Married	83
Widowed	8
Single	3
Engaged	0
Divorced	6
Separated	0
EDUCATION COMPLETED	
Elementary (grades 1-6)	3
Junior High (grades 7-8)	3
High School (grades 9-12)	44
1-3 Years College	28
Baccalaureate	20
Master's Degree	2
Doctor's Degree	0
OCCUPATION	
Unemployed or Retired	0
Housewife	39
Administrative (office work)	25
Technical Specialist (mechanical)	11
Professional (non-medical)	14
Combat Related (line groups)	3
Student (full time)	0
Blue Collar (custodial)	8
Medical Professional (RN,MD,DDS)	0
Other	0

TABLE 35

HISTORICAL FEATURES OF LOW BACK PAIN PATIENTS' ILLNESS AND EDUCATION PROVIDED: INITIAL ENCOUNTER

Historical Features	Patients N=36 %
HEALTH CARE PROVIDER	
Physician	100
Nurse Clinician	0
Physical Therapist	0
HAS HAD PRIOR INSTRUCTION	
Yes	72
No	28
TIME OF PRIOR INSTRUCTION	
Less Than 3 Months	46
4 to 6 Months	4
7 to 12 Months	0
1 to 2 Years	4
More Than 2 Years	46
INSTRUCTIONS PROVIDED BY	
Physician	54
Nurse Clinician	4
Physical Therapist	42
HISTORY OF BACK PAIN	
Yes	83
No	17
HOW BACK PAIN STARTED	
Trauma	53
Long Trip	0
Other	47

(b) Patient Comprehension for the Initial Encounter.

1 Findings.

a Prior to the educational intervention all patients completed a multiple-choice questionnaire (pre-test) and posture demonstration to determine their knowledge and skills in reference to the following learning objectives (the objectives were identified by a physician consultant as feasible achievements for all low back pain patients):

LOW BACK PAIN OBJECTIVES

Upon completion of this learning program the patient will be able to:

- Define good posture.
- Identify who may acquire low back pain.
- Identify the most common cause of low back pain.
- Tell what part of the spine is affected when you have low back pain.
- Describe why being over weight can cause low back pain.
- Explain that exercise is the only real treatment/cure for low back pain.
- Demonstrate the proper exercises for low back pain.
- Describe the proper method to lift heavy loads, such as, children, groceries, etc.
- Tell how to properly use pillows while sleeping or relaxing.
- Demonstrate good posture.
- Explain how to properly select furniture.

b See Table 36, page 131, Percentage of Low Back Pain Patients That Achieved the Criterion Level: Initial Encounter. All patients were pre and post tested to include a posture demonstration. Thirty-three percent reached the criterion level on the pre-test, 67 percent did not. Sixty-one percent failed the posture demonstration on the pre-test, 39 percent passed. For the post-test 92 percent reached the criterion level and 100 percent passed the posture demonstration.

2 Discussion.

It is important to note that 72 percent of the population that was referred to the learning center had had prior instruction and 46 percent of them less than 3 months before referral, however, only approximately 33 and 39 percent passed the respective pre-tests. Eight percent of the patients who did not reach the criterion level were recycled in order to reach the criterion level.

TABLE 36

PERCENTAGE OF LOW BACK PAIN PATIENTS THAT ACHIEVED THE CRITERION LEVEL: INITIAL ENCOUNTER

GROUPS	0-29%	30-49%	50-69%	70-79%	80-100%
GENERAL INFORMATION					
Pre-Test	3	11	31	22	33
Post-Test	*0*	*0*	*3*	*5*	*92*

	PASS	FAIL
CORRECT POSTURE DEMONSTRATION		
Pre-Test	39	61
Post-Test	*100*	*0*

(c) Patient Comprehension for the Initial Encounter and One Month Assessment.

1 Findings.

See Table 37, page 132, Percentage of Low Back Pain Patients That Achieved the Criterion Level for the One Month Assessment. All patients were at the criterion level or above one month later. Four (80 percent) passed the correct posture demonstration, one (20 percent) did not.

2 Discussion.

a The person who did not pass the posture demonstration for the one month visit was given a correct posture demonstration. The deficiency was corrected during that visit.

b The number of subjects reported on was small; therefore, the results were not subjected to statistical interpretation.

TABLE 37

PERCENTAGE OF LOW BACK PAIN PATIENTS THAT ACHIEVED THE CRITERION LEVEL FOR THE ONE MONTH ASSESSMENT

N=5-%

GROUPS	INITIAL ENCOUNTER	ONE MONTH ASSESSMENT
GENERAL INFORMATION		
Below 80% Pre-Test	60	
Above 80% Pre-Test	40	
Below 80% Post-Test	0	
Above 80% Post-Test	100	100
CORRECT POSTURE DEMONSTRATION		
Pass	100	80
Fail	0	20

(d) Additional Patient Behavioral Data: One Month Assessment.

See Table 38, page 133, Additional Low Back Pain Patient Behavioral Data: One Month Assessment. The only behavioral baselines that were taken in addition to the correct posture demonstration was history of back pain and how the pain started, as reported in Table 35, page 129, Historical Features of Low Back Pain Patients' Illness and Education Provided: Initial Encounter. For the one month follow-up the following additional data was elicited: maintained exercise program, 80 percent yes, 20 percent no, experiencing any discomfort, 80 percent yes, 20 percent no. For the four patients who were experiencing discomfort, 50 percent described the discomfort as constant and 50 percent as intermittent. Fifty percent associated the discomfort with standing and 50 percent with other, such as playing sports.

TABLE 38

ADDITIONAL LOW BACK PAIN PATIENT BEHAVIORAL DATA: ONE MONTH ASSESSMENT

OUTCOMES	N=5 %
MAINTAINED EXERCISE PROGRAM	
Yes	80
No	20
EXPERIENCING ANY DISCOMFORT	
Yes	80
No	20
IF YES, DESCRIBE THE DISCOMFORT	
Constant	50
Intermittent	50
WHAT ACTIVITY IS THIS DISCOMFORT ASSOCIATED WITH	
Lifting	0
Auto Trips	0
Walking	0
Standing	50
More Than One Of The Above	0
Other	50

(8) Patient Consumer Response to the Systems Approach in a Prototype Patient Education Setting.

(a) Procedures.

The 307 patient referrals (professional or self) for the preceding five learning systems were given one additional measurement during their visit to the learning center. A Lickert scale response form reflecting the patient's opinion pertaining to the systems approach learning process.[122] The process evaluation included opinions on the following: viewing time, content interest, questions on topic, pace, content uniqueness, content value, non-professional paramedical health educator's style, learning center, preference for instruction, freedom to learn by audio-visual compared to usual instructions by professional health workers, personal responsibility for learning by audio-visual compared to usual instruction by health workers, patient attitude toward audio-visual modes for health education, patient viewing of commercial television in hours.

(b) Findings.

See Table 39, page 135, Patients' Opinion Toward the Systems Approach. The analysis of the opinion rating scale follows: viewing time, 92 percent felt it was OK; content interest, 38 percent felt it was OK, 61 percent found it fascinating; questions on topic, 26 percent said OK, 71 percent felt it really helped; pace, 82 percent responded OK and 14 percent felt it was too fast; content uniqueness, 54 percent said OK, 43 percent stated it was all new; content value, 24 percent said OK and 75 percent said most valuable; non-professional paramedical health educator's style, 16 percent felt it was OK and 84 percent felt it was excellent; learning center, 18 percent responded OK, and 82 percent responded excellent; preference for instruction, 38 percent preferred the audiovisual mode, 33 percent were neutral and 29 percent preferred a live teacher; freedom to learn by audiovisual compared to professional health workers, 39 percent said equal and 52 percent said they had more freedom; 56 percent said they felt more personal responsibility and 41 percent felt about the same; 27 percent had a neutral attitude toward audiovisual modes for health education, 62 percent had an excellent attitude; patient viewing of commercial television in hours per day, 28 percent viewed less than one hour, 21 percent viewed two hours, 31 percent viewed three hours, 12 percent viewed four hours, and 8 percent viewed television more than five hours per day. Refer to Appendix I, page 217, Patients' Opinion Toward the Systems Approach for the Individual Five Learning Systems.

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[122] Adapted from "Scales to Determine Student Attitude About TeleTutorial Lessons," by Volker, Simonson, R., and Simonson, M., as appeared in Audiovisual Instruction, November 1975, 51.

TABLE 39
PATIENTS' OPINION TOWARD THE SYSTEMS APPROACH

TOPIC AREA	OPINION RATING SCALE:				
	1	2	3	4	5
VIEWING TIME	Too Short		OK		Too Long
	1	4	92	2	1
CONTENT INTEREST	Boring		OK		Fascinating
	0	1	38	41	20
QUESTIONS ON TOPIC	No Help		OK		Really Helped
	1	2	26	23	48
PACE	Too Slow		OK		Too Fast
	1	3	82	12	2
CONTENT UNIQUENESS	Old Stuff		OK		All New
	1	2	54	28	15
CONTENT VALUE	No Value		OK		Most Valuable
	0	1	24	25	50
NON-PROFESSIONAL PARAMEDICAL HEALTH EDUCATOR'S STYLE	Poor		OK		Excellent
	0	0	16	17	67
LEARNING CENTER	Poor		OK		Excellent
	0	0	18	19	63
PREFERENCE FOR INSTRUCTION	A/V Mode		Neutral		Live Teacher
	33	5	33	7	22
FREEDOM TO LEARN BY A/V COMPARED TO HEALTH WORKERS	Less Freedom		Equal		More Freedom
	2	7	39	20	32
PERSONAL RESPONSIBILITY A/V COMPARED TO HEALTH WORKERS	Less		Equal		More
	1	2	41	20	36
PATIENT ATTITUDE TOWARD A/V MODES FOR HEALTH EDUCATION	Poor		Neutral		Excellent
	0	1	27	25	47
PATIENT VIEWING OF COMMERCIAL TV IN HOURS PER DAY	Less Than		Hours		More Than
	28	21	31	12	8

(c) Discussion.

1 For the most part the patients appeared to be extremely receptive. The findings were congruent with those found in the hypertensive study, "A Comparative Evaluation of the Traditional Versus A Systems Approach for Hypertensive Patient Education."[123] Scores were high in content interest, uniqueness and value, the non-professional paramedical health educator's style, the learning center concept, audiovisual preference for instruction, more freedom to learn and greater personal responsibility for learning by audiovisual compared to usual instruction by professional health workers. The patients' attitudes toward the audiovisual modes were excellent. There was also a higher than expected acceptance of the non-professional health educator.

2 It is important to point out that the majority of the dropouts didn't reflect a dissatisfaction with the systems approach concept. However, they reflected an attitude conveyed by their actions about the relative unimportance (in their value system) of patient or preventive health education per se. Therefore, more general education and information will be needed to change their current attitudes.

8. CONCLUSIONS.

a. Physical Facilities.

Due to time and space constraints the findings for the physical facilities were limited and can only be used as guidelines.

b. Communications Media.

Until approximately 1985 the videocassette format appears to be the most cost effective and efficient medium, for the AMEDD, in which to transmit the validated patient learning systems in hospitals and outpatient settings.

c. Non-Professional Paramedic as Health Educator.

(1) Graduates of the 91C20 clinical specialist course should be considered as potential health educators.

(2) The health educator would be qualified to perform the functions of: learning center operator, counselor, records manager, and coordinator of learning center activities.

(3) The Chief, Health and Environment or Chief, Nursing Education and Training (Educational Coordinator) should be considered for overall supervisor, coordinator, budgeting and program planner for the individual MEDCEN and MEDDAC learning centers.

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[123] Kucha, D.H., *A Comparative Evaluation of Traditional Versus A Systems Approach for Hypertensive Patient Education*, Phase 3, Final Report, HCSD, AHS, FSHTX, August 1977.

d. Program Development.

(1) Staff Development, Professional and Self Referral.

(a) The outcomes indicated on the whole that there wasn't any strong resistance on the part of the professionals toward PACOMED. However, they were reluctant to accept some features of the concept, especially in areas concerning professional roles. There was much ambivalance on the part of the professional staff concerning patient education.

(b) Giving additional benefits such as preventive and patient education to health consumers is not enough. Patient consumers need stronger motivators plus more mass education about the value of preventive medicine.

(c) Preventive patient education for the active duty soldier needs to be provided via his/her unit training system rather than a hospital based program.

(d) Part of the problem was that there wasn't enough time to develop the program planning and management systems properly. Consequently, many of the measurements and observations were premature, At best this study component only suggests the direction the various stages of program development may have taken.

(2) Accountability and Monitoring.

(a) All of the baseline data indicated a need for a more effective, efficient, cost effective method of providing patient education than now exists in the AMEDD health care delivery system.

1 Not all of the patients that should were receiving patient education.

2 In more cases than not, the health care provider was a physician rather than a nurse clinician. Therefore, most of the instruction that was provided was given by a physician. The cost was too high, it wasted valuable professional time and did not provide for quality assurance in the patient education area.

3 The instructions that were given weren't that effective, as indicated in the individual patient baseline scores, in the areas of comprehension, retention, and psychomotor skills.

4 The data revealed that patients were only getting part of the educational message. There were wide gaps in what behaviors were perceived to be most important and the priorities that were given those behaviors by the patients.

5 The PACOMED concept could provide the patient education at approximately 1/1000th the cost if the learning systems would be used in 30 to 50 MEDCENS, MEDDACS, or troop clinics.

(b) Judging from the demographic data it was documented that the five learning systems (hypertension, diabetes, weight control, breast self examination, and low back pain) all have wide application for the active duty soldier. Therefore, the implications of providing preventive patient education using the I.S.D. approach via some form of media for the active duty soldier that is cost effective could have far reaching consequences.

(c) The data suggest that booster levels and times of reinforcement were learning system dependent. In other words, different topic areas and learning objectives probably would require different time increments for optimum reinforcement in order to sustain desired outcomes.

(d) The analysis of the Patients' Opinion toward the systems approach indicated very positive findings in relation to the SA concept. Scores were high in content interest, uniqueness and value, the non-professional paramedical health educator's style, the learning center concept, audiovisual preference for instruction, more freedom to learn, and greater personal responsibility for learning by audiovisual compared to usual instruction by professional health care workers. The patients attitudes toward the audiovisual modes were excellent. There was a high acceptance of the non-professional as health educator.

(e) However, it is important to point out that many patient consumers reflected an attitude, conveyed by their actions, about the relative unimportance in their value system, of patient or preventive health education per se. Therefore, more general education and information about the value of consumer health education will be needed to change their current attitudes.

(4) This phase of the PACOMED project was too short. At least an additional one or two years would have been needed to examine the results of the outcomes properly. More subjects as well as long-term measurements in all areas were needed.

9. RECOMMENDATIONS.

a. Although the patient measurements were limited, the outcomes of this phase, like the hypertension study, demonstrated the efficiency of the SA approach in the areas of comprehension, retention behavioral influence and cost-effectiveness. It would appear desirable to start this type of patient education program in the AMEDD.

b. Consideration should be given by HSC and OTSG to institute action toward this end.

c. Additional research should be done in the following areas:

(1) Cost analysis studies in the areas of quantifying benefits more accurately and in the distribution of costs and utilization of patient education.

(2) Identification of threshold and booster levels as well as levels of diminishing returns.

(3) Development of common measurable predictors of success for a receptive attitude toward patient education and the various methodologies.

(4) The relationships between patient knowledge levels and patterns of disease control.

(5) Retention studies to evaluate the long-term worth (2,5,10 years) of different types of consumer educational programs.

(6) Studies to develop successful motivational techniques for health care providers and patient consumers.

d. The complete report and specifically the many findings and observations should be made available to those conducting research in patient education and operating or planning to operate a patient education program.